Supreme Court, U.S.
FILED

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In The

# Supreme Court of the United States

October Term, 1996

G•UB•MK CONSTRUCTORS,

*Petitioner,*

v.

ROBERT REICH, THE UNITED STATES SECRETARY OF LABOR,

*Respondent.*

## Petition For Writ Of Certiorari To The United States Court Of Appeals For The Eleventh Circuit

## PETITION FOR WRIT OF CERTIORARI

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143 pp

## QUESTION PRESENTED

Whether the Secretary of Labor, having rule-making authority but no adjudicatory authority under the Occupational Health and Safety Act, may engage in retroactive rule-making; specifically, through the issuance of citations in the enforcement process.

## LIST OF INTERESTED PARTIES

1. G•UB•MK Constructors, an unincorporated joint venture: Petitioner.

2. Gilbert/Commonwealth, Inc.: Party to Petitioner G•UB•MK Constructors, an unincorporated joint venture.

3. Gilbert Associates, Inc.: Parent company of Gilbert/Commonwealth, Inc.

4. Morrison-Knudsen Corporation: Party to Petitioner G•UB•MK Constructors, an unincorporated joint venture.

5. Union Boiler Company: Party to Petitioner G•UB•MK Constructors, an unincorporated joint venture.

6. Robert Reich, United States Secretary of Labor: Respondent.

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## ORDERS AND OPINIONS BELOW

This petition involves the Eleventh Circuit Court of Appeals' affirmance, in part, of a final order of the Occupational Safety and Health Review Commission. The Order of the Eleventh Circuit Court of Appeals appears as Appendix A hereto and is not officially reported. The Order was filed with the clerk of the United States Court of Appeals for the Eleventh Circuit on March 6, 1996 in the appeal styled *G•UB•MK Constructors v. Secretary of Labor;* United States Court of Appeals for the Eleventh Circuit; No. 94-6528. The Notice of Final Order of the Occupational Safety and Health Review Commission appears as Appendix B hereto and is not officially reported. The Notice was filed with the clerk of the Occupational Safety and Health Review Commission on May 3, 1994 in the matter styled *Secretary of Labor v. G•UB•MK Constructors,* Docket No. 92-3040. The Decision and Order of Administrative Law Judge Edwin G. Salyers appears as Appendix C hereto and is not officially reported. The Decision and Order was filed with the clerk of the Occupational Safety and Health Review Commission on March 4, 1994 in the matter styled *Secretary of Labor v. G•UB•MK Constructors;* OSHRC Docket No. 92-3040.

## STATEMENT OF JURISDICTION

The Order of the Eleventh Circuit Court of Appeals was entered on March 6, 1996. The Eleventh Circuit Court of Appeals entered its order denying the petition for

rehearing on July 5, 1996. (Appendix D). This Court's jurisdiction is invoked pursuant to 28 U.S.C. § 1254(1).

## CONSTITUTIONAL PROVISIONS, STATUTES, AND REGULATIONS INVOLVED

This petition involves the due process guarantee of the Fifth Amendment to the Constitution of the United States. The statutes involved in this petition are provisions of the Administrative Procedure Act, specifically 5 U.S.C. §§ 553 and 706, and provisions of the Occupational Safety and Health Act, 29 U.S.C. §§ 655, 660, 661, and 666. The regulation involved in this petition is the Occupational Safety and Health Administration's inorganic arsenic standard, 29 C.F.R. § 1910.1018. The Constitutional provision, the statutes and the regulation involved are set forth verbatim in Appendix E.

## STATEMENT

1. In 1970, Congress enacted the Occupational Safety and Health Act (OSH Act), 29 U.S.C. § 651 *et seq.* The OSH Act provided the Secretary regulatory and enforcement responsibilities, including the authority to promulgate, modify or revoke any occupational safety or health standard (29 U.S.C. § 655(b)), to conduct work site investigations to assure compliance with health and safety requirements (29 U.S.C. § 657), and to issue citations whenever the Secretary believes an employer has

violated the OSH Act or any standard, rule, or regulation promulgated by the Secretary. (29 U.S.C. § 658).

In the OSH Act, Congress created the Occupational Safety and Health Review Commission (the "Commission") for carrying out adjudicatory functions. 29 U.S.C. § 651(b)(3). When a citation issued by the Secretary is contested by the employer, the Commission must afford an opportunity for a hearing and thereafter issue an order, based on findings of fact, affirming, modifying, or vacating the Secretary's citation. 29 U.S.C. § 659(e). The Secretary or an aggrieved party may seek judicial review of adverse Commission decisions. 29 U.S.C. § 660(b).

The Administrative Procedure Act (APA), 5 U.S.C. § 551 *et seq.*, authorizes agencies having rule-making authority to issue only rules having future effect. 5 U.S.C. § 551(4).

2. In 1978, the Secretary promulgated a final standard governing occupational exposure to inorganic arsenic. 43 Fed. Reg. 19584-19631 (May 5, 1978). The Secretary set a permissible exposure limit (PEL) at 10 $\mu g/m^3$ averaged over 8 hours (App. 71a), the lowest level at which compliance was believed to be economically and technically feasible.

The standard on inorganic arsenic appears at 29 C.F.R. § 1910.1018. In the Federal Register notice of the promulgation of the standard, the preamble reveals that the primary focus of the regulation was to address the dangers of respiratory cancer resulting from exposure to inorganic arsenic among copper and zinc smelter workers, workers subjected to constant exposure over a long period of time. The epidemiological studies relied on

by the Secretary in setting the standards used as subjects workers in copper and zinc smelters. (Appendix E.9)

In 1983, the Secretary re-examined the standard for inorganic arsenic and asked for public comments. In the only comment of record at any time addressing the issue of less than constant, long-term exposure, the Edison Electric Institute made a brief appearance and argued that no significant risk had been demonstrated to power plant workers exposed to inorganic arsenic while cleaning boilers, without explaining the cleaning process or presenting evidence of the level of the employee exposures. The Secretary concluded that a significant risk existed for power plant workers and that there was no basis for excluding them from the standard. The Secretary's reasoning was that if the power plant workers were exposed to 100 $\mu g/m^3$ arsenic for eight hours every two weeks, (i.e., twenty-five weeks per year), that would be the equivalent of being exposed to the PEL of 10 $\mu g/m^3$ every working day. 48 Fed. Reg. at 1895. The Secretary's entire supplementary statement of reasons supporting the inorganic arsenic standard appears at 48 Fed. Reg. 1864-1903.

3. Prior to the issuance of citations to G•UB•MK, there is no known instance of the application of the inorganic arsenic standard to workers in coal-fired electric power plants being examined, explained or amplified through any means, including the process of issuing citations enforcing the standard.

4. G•UB•MK is a contractor to the Tennessee Valley Authority ("TVA"). Among other things, G•UB•MK provides maintenance, alteration and repair services to

TVA's coal-fired power plants, on an as-needed basis. Other than a relatively small staff of engineers and administrators, G•UB•MK does not maintain a full-time work force. Craftsmen are hired by G•UB•MK through union halls only for the duration of jobs assigned by TVA to G•UB•MK.

Early in 1992, TVA informed G•UB•MK that maintenance and modification of a boiler in TVA's Colbert plant in Alabama would need to be performed in the spring of 1992. The boiler, known as Unit 5, was taken out of service on April 11, 1993 and the work performed on it by G•UB•MK started that day and concluded on June 6, 1992. Hundreds of workers were utilized around the clock performing numerous tasks on all parts of Unit 5. Samples taken indicated the possibility that at two locations within Unit 5, some forty workers could have been exposed for ten days to levels of inorganic arsenic between 2.10 $\mu g/m^3$ to 59.4 $\mu g/m^3$. By June 6, 1992, all the craftsmen hired by G•UB•MK to perform the work on Unit 5 had been laid off.

On May 27 and 29, 1992, an OSHA representative conducted an inspection of the G•UB•MK work on Unit 5. On September 4, 1992, OSHA issued nine citations to G•UB•MK for violations of various standards.[1] Two were vacated by the Administrative Law Judge. Two more were withdrawn by the Secretary while the case was on appeal to the Eleventh Circuit. Of the seven remaining, five involve citations entirely or partially for violations of

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[1] The citations are stated in their entirety in the ALJ's Decision and Order (Appendix C).

the inorganic arsenic standards. It is only those citations for violating the inorganic arsenic standards that are the subject of this petition.

5. G•UB•MK contested all citations. On November 9, 1992, the Secretary filed a complaint against G•UB•MK seeking to enforce citations and monetary penalties assessed with the citations. The action was tried in Florence, Alabama on April 27, 28 and 29, 1993 before an Administrative Law Judge (ALJ), Edwin G. Salyers. On March 4, 1994, Judge Salyers issued a Decision and Order vacating two citations, affirming seven citations, and imposing penalties upon G•UB•MK. (Appendix C).

On March 30, 1994 G•UB•MK filed a petition for discretionary review by the Occupational Safety and Review Commission (the "Commission"). On May 3, 1994, the Commission issued a notice of final order, denying the petition for discretionary review and ordering that the Administrative Law Judge's decision became a final order of the Commission on May 2, 1994. (Appendix B).

On June 13, 1994, G•UB•MK filed its petition for review of the order from the Commission with the United States Court of Appeals for the Eleventh Circuit. The Eleventh Circuit Court of Appeals denied G•UB•MK's request for oral argument and issued its order affirming, in part, the order of the Commission.[2] (Appendix A). On

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[2] At the request of the Secretary of Labor, the Eleventh Circuit Court of Appeals vacated two of the citations affirmed by the Commission. The Eleventh Circuit affirmed the five remaining citations and the penalties imposed upon G•UB•MK.

April 22, 1996, G•UB•MK filed its petition for rehearing. On July 5, 1996, the Eleventh Circuit Court of Appeals issued its order denying the petition for rehearing. (Appendix D).

G•UB•MK Constructors now petitions this Court for a writ of certiorari to the United States Court of Appeals for the Eleventh Circuit.

## REASONS FOR GRANTING THE PETITION

The Court should review the Court of Appeals' decision affirming without elaboration the ALJ's decision which had the effect of ruling, for what is believed to be the first time in the history of the OSH Act or the APA, that the Secretary can engage in retroactive rule-making and enforce such rules, something which is prohibited by law and which have never been ruled on directly by this Court.

1. The decision that the Secretary's inorganic arsenic standard applied to the work performed by G•UB•MK was incorrect.

The standard to be applied is one of consistency and reasonableness. The determination must be whether the Secretary's interpretation and application of a regulation is consistent with the regulatory language and reasonable given the intent of the regulation. *Georgia Pacific Corp. v. OSHRC*, 25 F.3d 994, 1004 (11th Cir. 1994).

The Secretary's application of the inorganic arsenic standards to the work being done by G•UB•MK was

neither consistent with the regulatory language nor reasonable given the intent of the regulation.

The inorganic arsenic standards, by design and by the Secretary's announced purpose, are intended to apply to workers who are constantly exposed to inorganic arsenic over long periods of time. The standards focus primarily on conditions at copper and zinc smelters. Even in the one instance considered in rule-making by the Secretary involving workers at coal-fired power plants, the Secretary considered the effect of the exposure of workers permanently employed by the power companies, and the Secretary assumed their exposure every two weeks over, presumably, their working careers, to be a level of exposure high enough to be the equivalent of their exposure to the PEL of 10 $\mu g/m^3$ every working day.

The Secretary considered nothing like the circumstances faced by G•UB•MK at the Colbert plant. Craftsmen were employed out of union halls to work a few weeks. Some forty workers may have been exposed for no more than 10 days to levels slightly above the PEL. All were laid off at the conclusion of the job to work for some other employer at some other unknown place under unknown conditions, with no certainty that they would ever be exposed to inorganic arsenic in the work place again.

At most, the G•UB•MK experience presents a case of brief intermittent exposure of transitory workers to low levels of inorganic arsenic. Very likely, it presents a case of one-time, brief exposure of transitory workers to low levels of inorganic arsenic.

Both the Commission and the Court of Appeals have the adjudicative responsibility to determine whether the Secretary's interpretations are reasonable and consistent with promulgated standards, or whether they are erroneous or inconsistent with the promulgated standards. *Sec. of Labor v. Mutual Min., Inc.*, 80 F.3d 110, 115 (4th Cir. 1996) (considering an analogous adjudicatory body). *See also, Torrington Co. v. U.S.*, 82 F.3d 1039, 1050 (Fed. Cir. 1996).

The Secretary's interpretation, through the citation process, that the inorganic standards apply to brief, intermittent exposures at low levels to transitory workers is both erroneous and inconsistent with the promulgated standards.

The standards impose among other things, a medical surveillance program consisting of an initial examination followed by annual examinations (29 C.F.R. § 1910.1018(n)) (App. 89a-92a), obviously intended for long term employment with constant or frequent exposure to inorganic arsenic. Monitoring for inorganic arsenic must be repeated at least quarterly if initial monitoring reveals employee exposure above the PEL, and every six months if below the PEL (29 C.F.R. § 1910.1018(e)(3)) (App. 72a-73a), again assuming long-term employment and constant or frequent exposure. The regulations require the employer to provide change rooms, showers and controlled-air lunchrooms (29 C.F.R. § 1910.1018(m)) (App. 87a-88a), requirements clearly directed at long-term employment and exposure situations. Such requirements would be onerous, to say nothing of unnecessary, in very short-term, limited exposure situations. Even if those conditions had been assumed

during rule-making the issue of economic feasibility versus expected benefits would have had to have been addressed in detail. It was not.

The Secretary's standards did not and do not apply to brief, intermittent or one-time exposure of transitory workers to low levels of inorganic arsenic, the exposure which was the subject of the citations issued against G•UB•MK.

2. Having no standards which apply to brief, intermittent exposure of transitory workers to inorganic arsenic, issuance by the Secretary of citations for such exposure amounts to retroactive rule-making, in violation of the APA and the OSH Act.

The Secretary establishes the standards through the exercise of rule-making authority. 29 U.S.C. § 665. The rule-making process is controlled by the APA, 5 U.S.C. § 551 *et seq*. The APA prohibits the retroactive effect of rule-making. 5 U.S.C. § 551(4). In a 1988 concurring opinion, Justice Scalia noted the apparent inviolability of that prohibition.

> Although the APA was enacted over 40 years ago, this Court has never directly confronted whether the statute authorizes retroactive rules. This in itself casts doubt on the Secretary's position. If so obviously useful an instrument was available to the agencies, one would expect that we would previously have had occasion to review its exercise.

*Bowen v. Georgetown Univ. Hospital*, 488 U.S. 204, 222-23, 102 L.Ed.2d 492, 508, 109 S.Ct. 468, ___ (1988) (concurring opinion).

The APA aside, without doubt the Secretary cannot engage in retroactive rule-making under the OSH Act.

The OSH Act assigns distinct regulatory tasks to two different administrative authorities. The Secretary of Labor (Secretary) is charged with setting and enforcing work place standards. 29 U.S.C. §§ 651(b)(3), 661. The Occupational Safety and Health Review Commission (Commission) is assigned the responsibility of carrying out "adjudicatory functions" under the OSH Act. 29 U.S.C. § 651(b)(3).

The Secretary establishes the standards through the exercise of rule-making power. 29 U.S.C. § 665. The rule-making process is controlled by the Administrative Procedure Act (APA), 5 U.S.C. § 551 *et seq.* The rule-making process expressly requires public notice of the proposed rule and an opportunity for comment from those individuals, entities, or groups affected by the proposed rule. 5 U.S.C. § 553. The recognized purpose of such notice is to comply with Constitutional due process requirements. *See Bell Lines, Inc. v. United States*, 263 F.Supp. 40 (Dist. W.Va. 1967).

The Secretary has no adjudicatory authority with respect to citations issued. Adjudicatory authority rests exclusively with the Commission. The Commission has no rule-making authority. That power rests exclusively with the Secretary. *Martin v. Occupational Safety and Health Review Commission*, 499 U.S. 144, 113 L.Ed.2d 117, 111 S.Ct. 1171 (1991).

The Secretary can use the enforcement process to expand the interpretation and meaning of standards promulgated under the APA, so long as that meaning is a

reasonable extension of the standard issued, and one that employers could reasonably have expected. *Martin v. Occupational Safety and Health Review Commission*, 499 U.S. 144, 152-153, 113 L.Ed.2d 117, 129, 111 S.Ct. 1171 (1991).

Taken as a whole, the Secretary's rules, including interpretations appearing in the form of citations, must be clear and definite so the affected employer will have adequate notice of the Secretary's understanding and intended application of the law. *Thomas Jefferson Univ. v. Shalala*, 512 U.S. ___, 129 L.Ed.2d 405, 423, 114 S.Ct. ___ (1994); *Georgia Pacific Corp. v. OSHRC*, 25 F.3d 999, 1004 (11th Cir. 1994); *Diamond Roofing Co. v. OSHRC*, 528 F.2d 645, 649 (5th Cir. 1976). As this Court recognized in *Martin v. Occupational Safety and Health Review Commission*, 499 U.S. 144, 111 S.Ct. 1171, 113 L.Ed.2d 117 (1991):

> But as the Secretary's counsel conceded in oral argument, Tr of Oral Arg 18-19, 20-21, the decision to use a citation as the initial means for announcing a particular interpretation may bear on the adequacy of notice to regulated parties, see Bell Aerospace, 416 US, at 295, 40 L Ed 2d 134, 94 S.Ct. 1757; Bowen v Georgetown Univ. Hospital, 488 US, at 220, 102 L Ed 2d 493, 109 S Ct 468 (Scalia, J., concurring), on the quality of the Secretary's elaboration of pertinent policy considerations, see Motor Vehicle Mfrs. Assn. of United States, Inc. v State Farm Mut. Automobile Ins. Co. 463 US 29, 43, 77 L Ed 2d 443, 103 S Ct 2856 (1983), and on other factors relevant to the reasonableness of the Secretary's exercise of delegated lawmaking powers.

*Martin v. Occupational Safety and Health Review Commission*, 499 U.S. at 158, 111 S.Ct. at ___, 113 L.E.2d at 132.

Emphasizing the point made in *Martin*, it was noted three years later in a dissenting opinion of this Court that "judges are properly suspect of sharp departure from past practice that are as unexplained as the Secretary's in this case." *Thomas Jefferson Univ. v. Shalala*, 512 U.S. ___, 129 L.Ed.2d 405, 422 (n.3), 114 S.Ct. ___ (1994) (dissenting opinion); citing *Motor Vehicle Mfrs. Assn. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 41-42, 77 L.Ed.2d 443, 103, S.Ct. 2856 (1983).

Waiting fourteen years from the time the inorganic standards were promulgated to issue citations for brief, intermittent exposure to transitory workers, for violating standards the Secretary had announced as being designed for constant, long-term exposure, would qualify as a sharp departure from past practice especially since it was unexplained.

A citation based upon a new interpretation announced for the first time during the enforcement process and which is beyond any reasonable extension of the regulations sought to be enforced effectively is an announcement of a new regulatory constraint applied retroactively. No agency can act retroactively through rule-making. An agency can act retroactively through adjudication. That is because adjudication deals with what the law was, while rule-making deals with what the law will be. *Bowen v. Georgetown Univ. Hospital*, 488 U.S. 204, 221-225, 102 L.Ed.2d 492, 508-510, 109 S.Ct. 468 (1988) (concurring opinion). The Secretary however, has no adjudicatory authority under the OSH Act and is without the ability to issue or apply regulations in a way that has retroactive effect.

3. The issue presented in this case is of considerable importance.

The potential impact of the Secretary's action just on coal-fired power plants throughout the country is obvious. but rather than measure the impact on one or several industries, the uncertainty created generally by the Secretary with respect to all existing standards is enormous. That uncertainty is heightened by inconsistencies in the Secretary's rule-making practices in recent years. In 1992, for instance, the Secretary issued standards controlling exposure to cadmium. 29 C.F.R. § 1910.1027. Those standards specifically exclude exposures that are only intermittent or where exposure above the PEL does not occur more than thirty (30) days during the year. 29 C.F.R. § 1910.1027(f)(i)(iii). Such clear direction to employers, and recognition of the special circumstances raised by intermittent or short-term exposures, is not necessary if, as in this case, the Secretary can without fair notice issue enforcement citations extending coverage of regulations for long-term exposure to intermittent or short-term exposures.

In addition, as rapid technology changes occur and render obsolete many assumptions made in OSHA standards issued twenty years ago, or more, the Secretary cannot be allowed to use the convenient, tempting enforcement process as the means of announcing new or updated regulations. The Secretary must be directed to the accepted rule-making process.

## CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted,

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## APPENDIX

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A. March 6, 1996 Decision of the United States Court of Appeals for the Eleventh Circuit affirming in part and reversing in part the order of the Occupational Safety and Health Review Commission ..... 1a

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E.6: 29 U.S.C. § 661 ..... 60a

E.7: 29 U.S.C. § 666 ..... 65a

E.8: 29 C.F.R. § 1910.1018 ..... 69a

## APPENDIX A

**March 6, 1996 Decision of the United States Court of Appeals for the Eleventh Circuit affirming in part and reversing in part the order of the Occupational Safety and Health Review Commission**

IN THE UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

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No. 94-6528
Non-Argument Calendar

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OSHA #92-3040

G-UB-MK CONSTRUCTORS,

Petitioner,

versus

SECRETARY OF LABOR,

Respondent.

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Petition for Review of an Order from the
Occupational Safety and Health Review Commission

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(Filed March 6, 1996)

Before ANDERSON, COX, and BIRCH, Circuit Judges.

PER CURIAM:

Items 3 and 4 of Citation I, and the penalties associated with those items, are VACATED at the request of the Secretary. In all other respects the order of the Commission is affirmed. *See* 11th Cir. R. 36-1.

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## APPENDIX B

**May 3, 1994 Notice of Final Order of the Occupational Safety and Health Review Commission, stating that the Decision and Order of the Administrative Law Judge has become a final order of the Commission**

UNITED STATES OF AMERICA
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HEALTH REVIEW COMMISSION
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| | |
|---|---|
| SECRETARY OF LABOR,<br>Complainant,<br>v.<br>G-UB-MK CONSTRUCTORS,<br>Respondent. | Docket No.<br>92-3040 |

## NOTICE OF FINAL ORDER

The petition for discretionary review filed by the *Respondent*, in the above cited action, was received by the Commission on *March 30, 1994*. The case was not directed for review. Therefore, the decision of the Administrative Law Judge became a final order of the Commission on *May 2, 1994*. Rule 90(d), 29 CFR § 2200.90(d); Section 12(j) of the Occupational Safety and Health Act of 1970, 29 U.S.C. § 661(j).

ANY PERSON ADVERSELY AFFECTED OR AGGRIEVED WHO WISHES TO OBTAIN REVIEW OF THE DECISION OF THE ADMINISTRATIVE LAW

JUDGE MUST FILE A NOTICE OF APPEAL WITH THE APPROPRIATE FEDERAL COURT OF APPEALS WITHIN 60 DAYS OF THE DATE OF THE ABOVE FINAL ORDER DATE. See Section 11 of the Occupational Safety and Health Act of 1970, 29 U.S.C. § 660.

FOR THE COMMISSION

/s/ Ray H. Darling, Jr.
Ray H. Darling, Jr.
Executive Secretary

May 3, 1994
Date

Docket No. 92-3040

NOTICE IS GIVEN TO THE FOLLOWING:

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## APPENDIX C

**Decision and Order of Administrative Law Judge Edwin G. Salyers**

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SECRETARY OF LABOR,
Complainant,
v.
G-UB-MK CONSTRUCTORS,
Respondent.

OSHRC Docket
No. 92-3040

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For Complainant

William P. Snyder, Esquire
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Knoxville, Tennessee
For Respondent

Before: Administrative Law Judge Edwin G. Salyers

*DECISION AND ORDER*

This proceeding arises under the Occupational Safety and Health Act of 1970 (29 U.S.C., § 651, *et seq*, hereafter referred to as the Act).

Respondent, G-UB-MK Constructors (G-UB-MK), at all times relevant to this action maintained a place of business at the Tennessee Valley Authority's (TVA's) Colbert Fossil Plant in Tuscumbia, Alabama, where it was engaged in modification and maintenance of steam generator units (boilers) (Tr. 541, 600). Respondent admits it is an employer engaged in a business affecting commerce and is subject to the requirements of the Act.

On May 27 and 28, 1992, following receipt of an employee complaint, the Occupational Safety and Health Administration (OSHA) conducted an inspection of G-UB-MK's Colbert worksite (Tr. 11, 14, 20). As a result of the inspection, G-UB-MK was issued citations alleging a number of violations of the Act, together with proposed penalties. G-UB-MK filed a timely notice contesting the alleged violations in their entirety, bringing this matter before the Occupational Safety and Health Review Commission (Commission).

On April 27 and 29, 1993, a hearing was held in Florence, Alabama, on the contested issues. The parties have submitted briefs, and this matter is ready for disposition.

## Alleged Violations

Serious Citation No. 1 alleges:

1
29 CFR 1910.1018(e)(5)(i): Each employee was not notified in writing within five (5) working days after receipt of monitoring results, which represented that employee's exposure to inorganic arsenic;

a) Boiler 5, results of exposure monitoring were not provided to employees in writing within 5 days of receipt.

2a
The alleged violations below have been grouped because they involve similar or related hazards that may increase the potential for illness.

29 CFR 1910.1018(q)(3)(i): All records for inorganic arsenic required to be maintained by paragraph (q) of this section were not made available upon request to the Assistant Secretary and the Director for examination and copying:

a) Boiler 5, records of all exposure monitoring were not made available for examination and copying.

2b
29 CFR 1910.1018(q)(3)(ii): Records requested, which are required to be maintained by paragraph (q) of this section, were not provided to employees, designated representative and Assistant Secretary:

a) Boiler 5, site labor representative did not receive arsenic exposure monitoring results after a written request was filed with the site manager.

3
29 CFR 1926.58(n)(5)(ii): Upon request, the employer did not make any exposure records required by 29 CFR 1926.58(f) and (n) available for examination and copying to affected employees, former employees, designated representatives, or the Assistant Secretary in accordance with 29 CFR 1910.20(a)-(e) and (g)-(i):

a) Boiler 5, site labor representative did not receive asbestos exposure monitoring results after a written request was filed with the site manager.

4
29 CFR 1926.59(e)(1): Employer had not developed or implemented a written hazard communication program which describes how the criteria in 29 CFR 1926.59(f), (g), and (h) will be met:

a) Boiler 5, a written hazard communication program had not been developed for employees exposed to hazardous chemicals such as asbestos, arsenic, welding fumes and ceramic fiber.

5
29 CFR 1926.59(h): Employees were not provided information and training as specified in 29 CFR 1926.59(h)(1) and (2) on hazardous chemicals in their work area at the time of their initial assignment and whenever a new hazard was introduced into their work area:

a) Boiler 5, information and training were not provided for employees exposed to hazardous chemicals such as asbestos, arsenic, welding fumes and ceramic fiber.

"Other" than serious Citation No. 2 alleges:

1
29 CFR 1910.20(g)(1): The employer did not provide current employees upon their first entering into employment and at least annually thereafter the information required in 29 CFR 1910.20(g)(1)(i)-(iii):

a) Boiler 5, at the time of initial employment employees were not informed of the existence, location, and availability of records covered by 29 CFR 1910.20. They were not informed of the person responsible for maintaining and providing access to records or of their rights of access to the records.

2
29 CFR 1910.134(b)(1): Written standard operating procedures governing the selection and use of respirators were not established:

a) Boiler 5, a written program was not developed for respirators used to provide protection against contaminants, such as arsenic, welding fumes, and ceramic fibers.

3
29 CFR 1910.134(b)(3): The users of respirators were not instructed and trained in the proper use of respirators and their limitations:

a) Boiler 5, training was not provided to employees wearing disposable respirators.

4
29 CFR 1926.59(g)(8): Employer did not maintain copies of the required material safety data sheets for each hazardous chemical in the workplace and ensure that they were readily accessible to the employees in their work area during each work shift:

a) Boiler 5, material safety data sheets were not available for welding rods which contain hazardous chemicals.

Alleged Violations of § 1910.1018

Fossil fuels, including coal, are commonly known to contain arsenic; when coal is burned, arsenic becomes concentrated in the cinders that result from combustion (Tr. 344). In a boiler, freed arsenic lodges in the boiler's pipes and may also be found in the boiler's particulate byproduct, "flyash" (Tr. 24).

Employees cutting pipe in the Colbert No. 5 boiler's economizer and precipitator, a collection device on the boiler's smoke stack which filters the combustion gases produced by the boiler, could be expected to release some form of arsenic into the air (Tr. 27, 345-346). Rolf Amundson, G-UB-MK's site manager (Tr. 625), testified that TVA arsenic sampling had been reviewed and that G-UB-MK was aware there was a potential for arsenic exposures in the area, although past samplings had been well below PEL levels (Tr. 633). Northwest Envirocon, an industrial hygiene and environmental consulting firm retained by G-UB-MK, first conducted arsenic monitoring in G-UB-MK's work areas in the economizer and precipitator on April 17, 1992 (Exh. C-4; Tr. 492-494, 502). The results of the monitoring were sent to a lab for analysis and the results made available by phone to Don Feezell, G-UB-MK's area safety engineer, on approximately April 21, 1992 (Tr. 496-498). Further monitoring was performed on April 22, May 5 and May 20 (Tr. 24, 495). At Feezell's request, a complete package documenting the monitoring results was not provided to Feezell until all the monitoring was completed in mid-May (Tr. 499).

Eleven employees were monitored on April 17; ten registered exposures over OSHA's permissible exposure

limit (PEL) of 10 micrograms per cubic meter averaged over an eight-hour day (Tr. 42). The highest exposure, 149.15 micrograms per cubic meter, was believed to be a false reading (Exh. C-4; Tr. 42, 507-509). Other readings show overexposures from 22.3 to 59.4 micrograms per cubic meter for the same day (Tr. 510-511). No overexposures were registered during later monitoring (Exhs. C-5, C-6, C-7; Tr. 43-44).

Bobby Terrell, the boilermaker's general foreman, testified that Don Feezell told him verbally of the arsenic results twelve to thirteen days after the initial arsenic monitoring (Tr. 721-726). Terrell stated all workers engaged at the economizer were orally notified of the monitoring results at that time (Tr. 722-726). Terry White, a boilermaker monitored for exposure to arsenic on April 17 (Tr. 274-276), testified, however, that he was unaware that he had been exposed to arsenic until a safety meeting on the subject of asbestos was held shortly before May 22 (Tr. 281-283).

Employees who had actually been monitored were eventually notified in writing of the monitoring results in letters drafted May 21, 1992 (Exh. R-22; Tr. 123, 641-42, 698). Compliance Officer Sharon Ratliff testified that on May 28 she was told by Amundson employees had not yet been notified (Tr. 29, 802). Terry White testified he received the monitoring results in a letter postmarked May 27 or 28 (Tr. 278). Other employees working in the area where monitoring was taking place were not notified in writing of the results (Tr. 123-124; *See also* testimony of Randy Pittman, Tr. 569-571). On May 28, Compliance Officer Ratliff requested Amundson to provide her with G-UB-MK's records of arsenic exposure monitoring at

that time (Tr. 35, 770, 799-801). Amundson refused stating that the data he had was not complete (Tr. 35-36, 769, 811).

David Faulkner, a site labor representative for Tennessee Valley Trades and Labor Council, told Ratliff that on approximately May 22, 1992, he had asked G-UB-MK to provide him with arsenic monitoring results, had been refused, and had not yet received any monitoring documents (Tr. 47; *See also* testimony of Faulkner, Tr. 219-220, 223). Faulkner further requested monitoring test results in a letter to Amundson dated May 28, 1992 (Exh. C-9; Tr. 47-49). On August 31, 1992, Faulkner told Ratliff he had not yet received a copy of the arsenic monitoring (Tr. 50). Faulkner testified that he received the arsenic monitoring on October 22, 1992 (Tr. 225).

Compliance Officer Ratliff testified that arsenic has been recognized as a cause of lung and skin cancer, as well as dermatitis and nasal perforations (Tr. 33). Dr. Carl Schultz, a board-certified toxicologist called by the Secretary (Tr. 312-342) agreed, testifying that inorganic arsenic is a carcinogen known to cause respiratory problems and lung and skin cancer in exposed populations (Tr. 343). Higher exposures for longer periods are associated with higher incidents of disease (Tr. 402). Schultz stated that cancer in humans exposed to carcinogens is a progressive disease. Specific symptoms may not appear until fifteen to thirty years after the initial exposure (Tr. 349).

Respondent's expert, Dr. Rupert Burtan, a board-certified specialist in occupational and environmental medicine (Tr. 371), took the view the arsenic exposures suffered by G-UB-MK's employees in the case at bar were

unlikely to lead to serious illness or death (Tr. 421-423).[1] However, Dr. Schultz opined, "with a reasonable degree of scientific certainty," that the exposure of G-UB-MK's employees to the levels of arsenic they encountered in boiler No. 5 increased their risk of developing respiratory cancer and dermatitis[2] (Tr. 348-349, 355). For reasons which will be discussed below (see Classification Section, pg. 8, *infra*), the court concludes it is unnecessary for the Secretary to show an immediate exposure to serious injury to meet the burden of proof under the cited standard.

As Ratliff confirmed in her testimony, unless monitoring records are maintained and provided, employees do not know whether to request protective equipment or seek medical treatment (Tr. 54), nor can OSHA ascertain an employer's compliance with the arsenic standard or ensure employees' protection (Tr. 53).

## Applicability

G-UB-MK argues that the inorganic arsenic regulations were never intended to apply to the intermittent

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[1] Dr. Burtan admitted, however, that his opinion (to the effect that there is a threshold exposure to carcinogens below which cancer is not a risk), is disputed in the scientific community (Tr. 426-430).

[2] Dr. Burtan admitted that the literature in the field points to inorganic arsenic as a cause of lung cancer, although he stated his own research failed to show such a correlation (Tr. 375). Skin damage, however, was found in the study group Burtan discussed (Tr. 386).

arsenic exposure encountered by workers at coal-fired power plants. Section 1910.1018(a) unambiguously states:

> This section applies to *all* occupational exposures to inorganic arsenic except that this section does not apply to employee exposures in agriculture or resulting from pesticide application, the treatment of wood with preservatives or the utilization of arsenically preserved wood. (Emphasis added)

Section § 1910.1018, *et seq.*, is, on its face, applicable to G-UB-MK's operation. Because the scope of the regulation is clear, it is neither necessary nor proper to look to secondary sources to discover the drafter's intent. *Alaska Trawl Fisheries, Inc. & Golden Age Fisheries*, 15 BNA OSHC 1699, 1992 CCH OSHD ¶ 29,758 (Nos. 89-1017 & 89-1192, 1992).

Serious Citation No. 1, Item 1

Section 1910.1018(e)(5)(i) provides that:

> Within five (5) working days after the receipt of monitoring results, the employer shall notify each employee in writing of the results which represent that employee's exposures.

It is undisputed that each employee working in boiler No. 5 was not notified in writing of monitoring results which represented that employee's exposure to inorganic arsenic. Moreover, G-UB-MK admits that the notifications that were sent out were not provided within five working days after G-UB-MK's receipt of the monitoring results (Tr. 32). A violation of § 1910.1018(e)(5)(i) is, therefore, established.

Classification

G-UB-MK disputes the classification of the violation as "serious," arguing that employee overexposures were insufficient and the delays in notification too brief to actually result in serious bodily harm.

According to § 17(k) of the Act, a violation is considered serious if the violative condition or practice gives rise to a "substantial probability" of death or serious physical harm. The test for determining the serious nature of violations of monitoring and reporting standards is not, therefore, whether actual overexposures to toxic materials were proven by the Secretary. The substantial probability of death or serious physical harm required by the Act refers not to any actual injury but to the probability that the hazard sought to be prevented by a given standard could result in death or serious physical harm. *Dec-Tam Corp.*, 15 BNA OSHC 2072, 1993 CCH OSHD ¶ 29,942 (No. 88-0523, 1993); *Phelps Dodge v. O.S.H.R.C.*, 725 F.2d 1237 (9th Cir. 1984).

The Secretary has sufficiently established that employees unwittingly exposed to known carcinogens over their working life are exposed to a serious risk of harm. Exposures to carcinogens are admittedly cumulative; timely written notification of exposures is, therefore, required to allow exposed employees to track their increased risk of developing cancer.[3] Such information

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[3] As evidenced by the testimony of employee Terry White, oral notification places an undue burden on the employee to recall and record monitoring results and is inadequate to fulfill the requirements and/or purpose of the standard.

allows the employees to determine for themselves the need for medical surveillance or to refuse future work in areas of potential exposure. This is especially important where, as here, single job employers do not maintain medical surveillance for itinerant laborers. Failure to provide the required notification within the time period established by the standard could result in unacceptable cumulative exposures for some workers.

Penalty

The Secretary has proposed a penalty of $2,250.

The gravity of the cited violation is moderate. Approximately forty boilermakers worked in the economizer area for a three- to five-week period (Tr. 34, 56-57). Large overexposures were recorded in the earliest monitoring, April 17. Although some workers were provided oral notification of the results, monitored employees did not receive written notification of their exposures until over a month later; exposed employees not monitored received no written notification.

G-UB-MK is a large company (Tr. 97, 596-597) with 427 craftsmen on the Colbert worksite at one point (Tr. 628). It has no history of prior violations (Tr. 97). The Secretary denied a good faith reduction based on G-UB-MK's failure to implement a safety and health program at the Colbert site (Tr. 98).

Taking the relevant factors into consideration, the undersigned finds that an additional 10 per cent reduction for good faith is warranted. Due to time constraints (Tr. 604), G-UB-MK temporarily adopted TVA's safety and

health program rather than develop their own (Tr. 605-610). Although, as discussed below, that program may not have been tailored to meet the specific requirements of G-UB-MK's contract, this Judge cannot say the deficiencies in the program are sufficiently flagrant to demonstrate bad faith. In view of this circumstance, and considering the gravity factor to be moderate, a penalty of $1,500 will be assessed.

Serious Citation No. 1, Item 2a

Section 1910.1018(q)(3)(i) requires that:

> The employer shall make available upon request all records required to be maintained by paragraph (q) of this section to the Assistant Secretary and the Director for examination and copying.

The regulation clearly states that records required under the Act shall be provided to the Secretary *upon request*. The immediate compliance requisite precludes the fabrication or sanitization of required records.[4] G-UB-MK's refusal to provide the requested records to Compliance Officer Ratliff at the time of the inspection, therefore, constitutes a violation of the Act.

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[4] There is no suggestion, and this Judge does not imply, that G-UB-MK's refusal to provide exposure records was so motivated.

## Penalties

Items 2a and 2b involve similar hazards that may increase the potential for harm. The proposed combined penalty is discussed below.

## Serious Citation No. 1, Item 2b

Section 1910.1018(q)(3)(ii) provides:

> Records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.20(a) through (e) and (g) through (i).

Site representative Faulkner's undisputed testimony establishes that site manager Amundson was aware that Faulkner's May 28, 1992, letter requesting "all test results" referred, *inter alia*, to arsenic monitoring results, which Faulkner had verbally requested from Amundson a few days earlier. It is also undisputed that Faulkner did not receive the requested monitoring until October 22, 1992. This circumstance establishes a violation of the cited standard.

## Classification

G-UB-MK argues that its failure to provide the required records should be classified as *de minimis*. The Commission, however, has held that access to medical and exposure records can play a crucial role in protecting employee health where employees are exposed to toxic substances within the scope of their employment. *General Motors Corp., Electro-Motive Div.*, 14 BNA OSHC 2064,

1991 CCH OSHD ¶ 29,240 (Nos. 82-630, 84-731 & 84-816, 1991). G-UB-MK employees were overexposured to arsenic for an undetermined period. Failure to provide the compliance officer and employee representative with monitoring results delayed their ability to evaluate the arsenic hazard and assess the need for engineering or work practice controls. The violation here was properly deemed serious.

Penalty

The Secretary proposes a combined penalty of $2,250.

The relevant factors have been set forth in the penalty section for item 1. For the reasons discussed there, the proposed penalty is deemed excessive. The court considers the gravity factor to be moderate for items 2(a) and (b), and a further reduction for good faith is allowed. A total penalty of $1,500 is assessed.

Alleged Violations of § 1926.58

G-UB-MK had contracted with TVA to repair boiler No. 5, replacing the superheat element and economizer tube, and rehabilitating the chimney, precipitator and turbo generator (Exh. C-8, C-8a; Tr. 71, 532). This was undertaken in addition to "regular operations on end work maintenance" (Tr. 532). On the date of the inspection, G-UB-MK employees were engaged in cutting and welding pipe in the "penthouse" at the top of boiler No. 5 (Tr. 16-17).

G-UB-MK was aware that asbestos insulation had originally been used in the No. 5 boiler, but believed that

it had since been removed (Tr. 632-633, 753). Asbestos monitoring was conducted in the penthouse on May 7, 1992, after an inspector discovered suspicious insulating material in the penthouse (Tr. 546, 633-634), and from May 19 through the date of the inspection (Tr. 59). Asbestos results require no laboratory testing and are available within thirty minutes of sampling (Tr. 503). The results of this monitoring were provided to the boilermakers' union job steward and posted at the boilermakers' lunchroom and tool room (Tr. 459, 487, 639, 657-658, 717, 720-721). All results obtained in monitoring were below the OSHA PEL of .2 fibers per cubic centimeter over an eight-hour day, and below the action level of .1 fibers per cubic centimeter (Tr. 60).

David Faulkner testified that he requested asbestos monitoring results from Feezell and Amundson on May 18 or 20, 1992, after learning that boilermakers had been exposed to asbestos in the penthouse (Tr. 212-215, 242-244). Faulkner stated that he was advised all the data was not yet in (Tr. 216). However, a May 20, 1992, letter addressed to Faulkner containing asbestos sampling results was given to Faulkner by another employee on or about May 22, 1992 (Tr. 221). Faulkner admitted its contents were readily available to employees on the site (Tr. 234). Faulkner received the results of monitoring conducted after May 20 on October 22, 1992 (Tr. 236-237).

On May 28, 1992, Faulkner filed a grievance with Amundson which requested that the asbestos results be sent to the union halls of the trades represented on G-UB-MK's Colbert worksite and posted at the worksite itself (Exh. C-9; Tr. 222-223, 253).

Ratliff testified that asbestos is recognized as a cause of lung cancer. Without access to monitoring records, employees cannot know whether they are being adequately protected from exposure to asbestos, or whether to seek medical attention (Tr. 62). Approximately forty employees were working in the penthouse area when monitoring was conducted (Tr. 63).

Applicability of the Construction Standards

Part 1926 of the Act contains the safety and health regulations for construction. Those regulations are applicable to employers who are actually engaged in construction, alteration and/or repair of a building or structure, or who are engaged in operations that are an integral and necessary part of construction work. *United Geophysical Corp.*, 9 BNA OSHC 2117, 1981 CCH OSHD ¶ 25,579 (No. 78-6265, 1981), *aff'd without published opinion*, 683 F.2d 415 (5th Cir. 1982).

The Secretary has established that G-UB-MK was engaged in construction. G-UB-MK contracted solely for, and was engaged solely in, the repair, alteration and maintenance of TVA structures; specifically boiler unit No. 5. G-UB-MK's operations were separate from, and in no way ancillary, to the actual operation of the boiler unit. *See Royal Logging Company*, 7 BNA OSHC 1744, 1979 CCH OSHD ¶ 23,914 (No. 15169, 1979), *aff'd*, 645 F.2d 822 (9th Cir. 1981). The cited construction standards are applicable.

Serious Citation No. 1, Item 3

The citation states:

> 29 CFR 1926.58(n)(5)(ii): Upon request, the employer did not make any exposure records required by 29 CFR 1926.58(f) and (n) available for examination and copying to affected employees, former employees, designated representatives, or the Assistant Secretary in accordance with 29 CFR 1910.20(a)-(e) and (g)-(i):
>
> > a) Boiler 5, site labor representative did not receive asbestos exposure monitoring results after a written request was filed with the site manager.

The record establishes that site representative Faulkner requested, but was not provided asbestos exposure monitoring results taken after May 20, 1992, until October 22, 1992. However, those results were posted on the site and were readily available to employees as well as to Faulkner, whose duties took him to the work areas for all the crafts on the site. As a practical matter, the court concludes respondent substantially complied with the intent of the standard by posting the results at the worksite. It did, however, seriously violate the standard's mandate to furnish the results to the employees designated representation upon request. The gravity factor is considered low, and a penalty of $500 is deemed appropriate.

Alleged Violations of § 1926.59

It is undisputed that G-UB-MK employees were exposed to hazardous chemicals including asbestos, arsenic, welding fumes and ceramic fibers (Tr. 64, 70-71), and that a written hazardous communication program was, therefore, required at the site.

Because of time constraints, G-UB-MK had not developed their own program, but expressly adopted the TVA program in its entirety (Exh. R-1; Tr. 65, 157, 603-604, 675-676). The TVA program, however, did not contain a list of chemicals which G-UB-MK employees would be using (Tr. 66, 146). In addition, the TVA program states that TVA's technical services would be responsible for procuring all material safety data sheets (MSDSs), and for providing hazard communication training.

Compliance Officer Ratliff testified that TVA was not, in fact, responsible for procuring G-UB-MK's MSDSs (Tr. 66, 145-146). While G-UB-MK relied on TVA to provides its MSDSs, it did not actually arrange for the necessary MSDSs to be maintained on the jobsite (TR. 686). Neither was TVA responsible for training G-UB-MK employees. G-UB-MK conducted its own safety training which consisted of a thirty-minute orientation (Tr. 77, 675). Compliance Officer Ratliff testified that the employees she interviewed during the inspection did not know the location of MSDSs (Tr. 77; *see also* testimony of Randy Pittman, Tr. 565). David Faulkner testified that upon his hiring, he had received only five or ten minutes of orientation from Mr. Amundson which did not include any information regarding MSDSs (Tr. 210-211). Terry White testified that he specifically asked where MSDSs were

kept and was told by Don Feezell that there were none at the time (Tr. 279-280).

Ratliff testified that G-UB-MK employees had not received hazardous chemical training (Tr. 77). Faulkner confirmed he did not receive any hazardous chemical training until approximately a month after the OSHA inspection (Tr. 211, 229, 239). Terry White verified he was not provided with any health hazard information on arsenic or asbestos or any other hazardous chemical prior to the OSHA inspection (Tr. 284). Sidney Dobbs, Jerry Greer and Randy Pittman, boilermakers who worked both in the penthouse and economizer (Tr. 449, 470-471, 542-543), confirmed they had never received any training on the health effects of either arsenic or asbestos (Tr. 448-449, 478, 565-567).

Serious Citation No. 1, Item 4

Section 1926.59(e)(1) requires that:

> Employers shall develop, implement, and maintain at the workplace a written hazard communication program for their workplaces which as [sic] least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and training will be met, and which also includes the following:
>
> > (i) A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas) . . .

Amendment

As a threshold matter, the undersigned finds that G-UB-MK's request to dismiss this item based on OSHA's failure to provide adequate notice of the specific allegations is without merit.

G-UB-MK argues that the citation charges it only with failing to develop a hazard communication program. At the hearing, however, the Secretary's counsel stated that item 4 was based not on the absence of a program, but on inadequacies of the TVA program adopted by G-UB-MK. Respondent maintains that it was deprived of an opportunity to defend itself against those charges.

The citation states:

> a) Boiler 5, a written hazard communication program had not been developed for employees exposed to hazardous chemicals such as asbestos, arsenic, welding fumes and ceramic fiber.

Although the citation does not list specific deficiencies in G-UB-MK's program, OSHA's compliance officer enumerated those at the hearing, and G-UB-MK's attorney fully explored the matter on cross-examination (Tr. 144-168). The entire TVA program (Exh. R-18) was entered into evidence at trial, and its contents examined. This Judge cannot find that G-UB-MK is prejudiced by amendment of the pleadings to allege deficiencies in G-UB-MK's adoption of the TVA hazard communication program. The pleadings are, therefore, amended to conform to the evidence. *Advance Bronze, Inc. v. Dole*, 917 F.2d

944, 955 (6th Cir. 1990); *See also Bland Construction Company*, 15 BNA OSHC 1031, 1991 CCH OSHD ¶ 29,325 (No. 87-992, 1991).

The Violation

The evidence establishes that G-UB-MK had not developed or implemented its own written hazard communication program describing how the criteria in 29 CFR 1926.59(f)(g), and (h) will be met.

Section 1926.59(e)(3) provides:

> The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in paragraph (e).

Any hazard communication program adopted must, according to the standard, describe in writing how OSHA requirements regarding MSDSs and training will be met. It must also include a list of the hazardous chemicals known to be present in the employer's work areas.

G-UB-MK failed to tailor TVA's program to reflect the particular work conditions which would be encountered by its employees as required by the standard. Nothing in the written materials distinguishes between TVA's and G-UB-MK's procedures for making MSDSs or hazardous chemical training available to employees. Nor is any distinction made between the hazardous chemicals known to be present in the TVA facility as a whole and those to which G-UB-MK employees will be exposed.

References in a written program stating that a third party, TVA, was responsible for providing services actually provided by G-UB-MK are potentially misleading to employees using the program, as is an overinclusive list of hazardous chemicals. The undersigned finds that the cited standard requires an employer who wishes to adopt a hazardous chemical program developed by another employer must tailor the adopted program to address the concerns of its own employees. G-UB-MK was, therefore, in violation of the § 1926.59(e).

Classification & Penalty

The record establishes that the cited violation was serious in nature. The Secretary maintains that without a written program, training in hazardous chemicals may not be implemented, exposing employees to serious harm. Employees who have not been trained in the hazardous chemicals to which they are exposed in their workplace may not recognize symptoms of exposure and seek medical surveillance. They may not request protective control measures or personal protective equipment and may not be aware of effective emergency control measures.

In fact, as discussed below, under Citation No. 1, item 5, G-UB-MK did not implement the hazardous chemical training required under § 1926.59(h) for employees actually exposed to chemical hazards. The violation is serious.

The Secretary has proposed a penalty of $1,350. As discussed above, an additional reduction for moderate

gravity and good faith is warranted. A penalty of $1,000 is assessed.

Serious Citation No. 1, Item 5

Section 1926.59(h) provides:

> *Employee information and training.* Employers shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.[5]

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[5] Section 1926.59(h) mandates that training include:

(1) *Information.* Employees shall be informed of:

(i) The requirements of this section;

(ii) Any operation in their work area where hazardous chemicals are present; and,

(iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.

(2) *Training.* Employee training shall include at least;

(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(ii) The physical and health hazards of the chemicals in the work area;

(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has

It is undisputed that training was not provided to employees exposed to hazardous chemicals such as asbestos, arsenic, welding fumes and ceramic fiber.[6] G-UB-MK relied instead on training previously provided by other employers, specifically TVA, for whom many of the boilermakers had previously worked (Tr. 748-750). Though many of the boilermakers had prior hazardous communication program training (Tr. 751), G-UB-MK also employed at least 56 newly hired apprentices and boilermakers who had never worked for TVA before (Tr. 569, 788-789). The evidence does not reflect that these employees or, for that matter, any of G-UB-MK's employees, received hazardous communication training directly from G-UB-MK prior to the Secretary's inspection.

G-UB-MK violated the cited standard by its failure to provide any of its employees with the required training. Item 5 will be affirmed.

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implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

[6] Upon hiring, written materials provided to G-UB-MK employees generally warn that there are hazards associated with exposure to asbestos and advise the use of control measures and personal protective equipment (Tr. 162-163). This fact does not equate to training.

Classification & Penalty

For the reasons previously discussed, the undersigned finds that item 5 is a serious violation with moderate gravity. A penalty of $1,500 is considered appropriate and will be assessed.

"Other" Than Serious Citation No. 2, Item 1

Section 1910.20(g)(1) requires:

> Upon an employee's first entering into employment, and at least annually thereafter, each employer shall inform current employees covered by this section of the following:
>
> (i) The existence, location, and availability of any records covered by this section;
>
> (ii) The person responsible for maintaining and providing access to records; and
>
> (iii) Each employee's rights of access to these records.

Compliance Officer Ratliff testified the employees she interviewed during her inspection confirmed that, upon hiring, they had not been told of the existence, location and availability of employee exposure records covered by § 1910.20. They were not informed of the person responsible for maintaining and providing access to records or of their rights of access to the records (Tr. 81). David Faulkner verified he was not informed of the location or availability of monitoring records at the Colbert site (Tr. 230). White, Dobbs, Greer and Pittman testified they were never informed of their right to review the results of G-UB-MK's hazardous chemical monitoring or

of the location of the results of such monitoring (Tr. 289, 452, 480, 572).

## The Violation

G-UB-MK does not dispute the allegations set forth by the Secretary but argues that the cited section is inapplicable because it had no exposure monitoring records at the time of its employees' initial employment. This argument is without merit. G-UB-MK's interpretation of the standard would allow employers creating records required under § 1910.20 for the first time to withhold this information from employees for up to a year – an absurd result.

As discussed above, G-UB-MK was aware prior to the start of the boiler rehabilitation that both arsenic and asbestos were potentially present at the worksite, and should have reasonably anticipated that monitoring and the creation of exposure records might become necessary. In any event, once actual monitoring commenced, it was the employer's duty to fulfill the requirements of the standard.

## Classification and Penalty

G-UB-MK argues that this violation should properly be classified as *de minimis*. The undersigned does not agree. As discussed under serious Citation No. 1, items 1 and 2 above, access to exposure records are necessary to allow exposed employees to track their increased risk of developing cancer, to determine the need for medical surveillance, or to refuse future work in areas of potential

exposure. Therefore, there is some relationship between employee safety and health and an employer's failure to inform those employees of the availability of hazardous chemical exposure records. This item will be affirmed as "other" than serious with no penalty assessed as proposed by the Secretary.

"Other" Than Serious Citation No. 2, Item 2

Section 1910.134(b)(1) provides:

> Written standard operating procedures governing the selection and use of respirators shall be established.

Compliance Officer Ratliff based this charge upon her conclusion that G-UB-MK had not established a written respirator program covering the procedures for selection and use of respirators which would provide protection against contaminants, such as arsenic, welding fumes and ceramic fibers (Tr. 84).

At the hearing of this case, G-UB-MK introduced a copy of TVA's respirator training manual, which was part of the TVA safety program adopted by G-UB-MK (Tr. 187). Ratliff, after reviewing the manual, testified the TVA procedures were adequate to meet the requirements of the standard (Tr. 188). She further testified that neither Feezell nor Amundson gave her the manual at the time of her inspection or at a September 3, 1992, closing conference but had shown her only a TVA policy statement concerning respirators and facial hair (Tr. 83-87).

## The Violation

The cited standard requires only that a respiratory program be established. Under the facts of this case, the Secretary has not shown by a preponderance of the evidence that G-UB-MK violated the cited standard.

Item 2 of Citation No. 2 will be vacated.

## "Other" Than Serious Citation No. 2, Item 3

Section 1910.134(b)(3) provides:

> (b) *Requirements for a minimal acceptable program* . . . (3) The user shall be instructed and trained in the proper use of respirators and their limitations.

Moldex 2200 dust masks were in use at the Colbert site (Tr. 84). Compliance Officer Ratliff testified, without contradiction, that the Moldex 2200 dust and mist respirator, which purifies the air being breathed, is a NIOSH-certified respirator (Tr. 191). Ratliff concluded that employees using the respirators were not instructed and trained in their proper use and limitations (Tr. 88-89), and that employees were using the dust masks to reduce their exposure to "flu gas," or sulfur dioxide, against which the Moldex 2200 provides no protection (Tr. 89-90). Ratliff's main concern was that the Moldex 2200 is not approved for use in atmospheres containing asbestos, arsenic, welding fumes or hazardous air contaminants to which G-UB-MK employees were potentially exposed (Tr. 80, 92).

Terry White confirmed he had received no training or information on respirator use at the Colbert site (Tr. 285).

Faulkner testified he was unaware of any respirator program, and had not received any instruction on the limitations of the dust mask in use at the jobsite (Tr. 226-227). Sidney Dobbs testified he never received any training in the use or limitations of respirators, including the dust mask he wore when working around dust in the penthouse (Tr. 446-447). Jerry Greer stated he did not receive respirator training. Without management approval, Greer used a twin canister respirator he found in a tool box on the site until the filters became too clogged for further use (Tr. 474-476).

Amundson testified he instructed new employees to wear disposable paper respirators according to "instructions on the box" when he conducted their orientation. He also informed them they should be clean shaven when using the masks and that the masks were ineffective for fumes and hazardous vapors (Tr. 681-682). Amundson admitted that he did not conduct the orientation for later hires but delegated that duty to his staff (Tr. 675-677).

## The Violation

The testimony of G-UB-MK employees establishes that training was not provided to all employees wearing disposable respirators. Amundson had no direct knowledge of the contents of the employee orientations which, if conducted at all, were conducted by others; his testimony is, therefore, insufficient to rebut the Secretary's evidence.

Nor is there any merit to G-UB-MK's argument that some employees had prior respirator training (Respondent's Brief, pg. 82). There is no evidence that G-UB-MK

made an effort to ascertain the prior training level of each employee. Moreover, not all the employees testifying, *e.g.*, Dobbs and Greer, had received any prior training in the use of respirators by G-UB-MK or any of their previous employers.

In support of its argument that this item should be vacated, G-UB-MK cites *Kenco Casing & Pulling, Inc.*, 11 BNA OSHC 1911, 1983 CCH OSHD ¶ 26,839 (No. 82-210, 1984); *Blocksom & Co.*, 11 BNA OSHC 1255, 1983 CCH OSHD ¶ 26,452 (No. 76-1897, 1983); and *Gulf Oil Corp.*, 11 BNA OSHC 1477, 1983 CCH OSHD ¶ 26,529 (No. 76-5014, 1983). In *Kenco*, an unreviewed administrative law judge decision which has no precedential value, the ALJ found the involved employees had actually received the necessary training from a previous employer and held § 1910.134(b)(3) "does not require that the employees' specific employer must have given him the training." *Id.* at 1912. The facts in *Kenco* are, therefore, distinguishable from the facts at bar. *Blocksom* is also inapposite on both the facts and the law. In that case, the employer initially had respirators on the worksite for use by its employees in the event of fire. At the time of the Secretary's inspection, however, the employer had changed its policy from one in which the employees would actually engage in fire-fighting operations and require the respirators to one where the fire would be fought by nearby fire departments and employees would immediately vacate the premises. In view of this circumstance, the Commission vacated the citation holding:

> The cited standard requires that the user of a respirator be properly trained in its use and limitations. The mere presence of respirators on

> a jobsite does not trigger the training requirement. In this case, it appears that Blocksom at one time did intend that the respirators would be used by employees in fighting fires. However, at the time of the alleged violation, Blocksom no longer intended that the respirators be used but had a policy to evacuate the plant in the event of any fire beyond immediate control and to rely on its automatic sprinkler system and the nearby fire departments to control all other fires. Thus, under the circumstances of this case, training in the respirators was not required. *Id.* at 33,595-596.

*Gulf Oil* is also distinguishable upon the facts. In *Gulf*, the Commission overturned a violation of § 1910.134(b)(3) upon its conclusion that the Secretary's evidence failed to show "exposure to hazardous air contaminants." It, therefore, held "a hazard requiring the use of respirators must be shown before an employer is obligated to provide respirator training."[7] *Id.* at 33,819. Since

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[7] In his dissenting opinion in *Gulf*, Commissioner Cleary takes issue with his colleagues' insistence that the Secretary must establish actual or potential employee exposure to dangerous levels of toxic substances before the cited standard is triggered. In his view, it is unnecessary to show exposure in excess of the PEL (permissible exposure limits) established in § 1910.1000 before § 1910.134 can be applied. *Id.* at 33,820-821. In the opinion of the undersigned, Commissioner Cleary's views expressed in his dissent more accurately interpret the intent and purpose of the respirator standard. Recent Commission decisions reflect a trend more in line with Cleary's dissent and in favor of a liberal construction of the respirator standard to protect employees actually and/or potentially exposed to air contaminants from the health consequences of such exposures. *See Power Fuels, Inc.*, 1991 CCH OSHD ¶ 29,304 (No. 85-166,

the evidence in the case at bar reflects actual or potential exposure of employees to toxic chemicals, these employees should have been provided with appropriate respirators and should have been trained in their use and limitations.

Exposures to toxic chemicals is established by the record. Up to 125 boilermakers were potentially exposed to toxic substances for approximately two months (Tr. 80) without the benefit of proper training.

For the reasons previously discussed, an additional reduction in the Secretary's proposed penalty of $900 is appropriate. A penalty of $500 will be assessed.

"Other" Than Serious Citation No. 2, Item 4

Section 1926.59(g)(8) requires:

> The employer shall maintain copies of the required material safety data sheets for each hazardous chemical in the workplace, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s).

Compliance Officer Ratliff testified that during her inspection, TVA safety personnel could not locate an MSDS for welding rods which contain hazardous chemicals (Tr. 92-94, 199). Joseph Thomas, a TVA maintenance superintendent, testified that the compliance officer was able to locate all the MSDSs she was looking for except the welding rod sheet (Tr. 742). Later that day or the next,

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1991); *Pride Oil Well Services*, 1992 CCH OSHD ¶ 29,807 (No. 87-692, 1992).

Thomas was able to locate the missing MSDSs which had been misfiled (Exh. R-4; Tr. 746-747). While this circumstance may constitute a technical violation of the standard, the evidence is insufficient to show G-UB-MK had knowledge of the cited condition. The court views this occurrence as a "clerical error" which was corrected upon discovery.

## The Violation

In order to prove a violation of section 5(a)(2) of the Act, the Secretary must show, *inter alia*, that the cited employer either knew or could have known of the condition with the exercise of reasonable diligence. *See, e.g., Walker Towing Corp.*, 14 BNA OSHC 2072, 2074, 1991 CCH OSHD ¶ 29,239, p. 39,157 (No. 87-1359, 1991). The Secretary failed to prove that G-UB-MK knew or should have known the missing MSDS had been misfiled.

Item 4. of Citation No. 2 will be vacated.

## FINDINGS OF FACT AND CONCLUSIONS OF LAW

All findings of fact and conclusions of law relevant and necessary to a determination of the contested issues have been found specially and appear in the decision above in accordance with Rule 52(a) of the Federal Rules of Civil Procedure.

## ORDER

1. Serious Citation No. 1, item 1, alleging a violation

of § 1910.1018(e)(5)(i), is affirmed and a penalty of $1,500 is assessed.

2. Serious Citation No. 1, items 2a and 2b, alleging violations of § 1910.1018(q)(3)(i) and (ii), are affirmed and a penalty of $1,500 is assessed.

3. Serious Citation No. 1, item 3, alleging a violation of § 1926.58(n)(5)(ii), is affirmed and a penalty of $500 is assessed.

4. Serious Citation No. 1, item 4, alleging a violation of § 1926.59(e)(1), is affirmed and a penalty of $1,000 is assessed.

5. Serious Citation No. 1, item 5, alleging a violation of § 1926.59(h), is affirmed and a penalty of $1,500 is assessed.

6. "Other" than serious Citation No. 2, item 1, alleging a violation of § 1910.20(g)(1), is affirmed without penalty.

7. "Other" than serious Citation No. 2, item 2, alleging a violation of § 1910.134(b)(1), is vacated.

8. "Other" than serious citation No. 2, item 3, alleging a violation of § 1910.134(b)(3), is affirmed and a penalty of $500 is assessed.

9. "Other" than serious Citation No. 2, item 4, alleging a violation of § 1910.59(g)(8), is vacated.

/s/ Edwin G. Salyers
EDWIN G. SALYERS
Judge

## APPENDIX D

**July 5, 1996 Order of United States Court of Appeals for the Eleventh Circuit denying G•UB•MK Constructors' Petition for Rehearing**

**IN THE UNITED STATES COURT OF APPEALS**
**FOR THE ELEVENTH CIRCUIT**

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No. 94-6528

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G-UB-MK CONSTRUCTORS,

Petitioner,

versus

SECRETARY OF LABOR,

Respondent.

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On Appeal from the United States District Court for the Northern District of Alabama

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(Filed Jul. 5, 1996)

BEFORE: ANDERSON, COX and BIRCH Circuit Judges.

PER CURIAM:

The petition(s) for rehearing filed by the Petitioner, G-UB-MK Constructors is denied.

ENTERED FOR THE COURT:

/s/ Emmett R. Cox
UNITED STATES CIRCUIT JUDGE

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## APPENDIX E

**Constitutional Provisions, Statutes, and Regulations Involved**

## APPENDIX E.1

## Constitution of the United States, Amendment V

## ARTICLE [V]

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

# APPENDIX E.2

# 5 U.S.C. § 553

**§ 553. Rule making**

(a) This section applies, according to the provisions thereof, except to the extent that there is involved –

(1) a military or foreign affairs function of the United States; or

(2) a matter relating to agency management or personnel or to public property, loans, grants, benefits, or contracts.

(b) General notice of proposed rule making shall be published in the Federal Register, unless persons subject thereto are named and either personally served or otherwise have actual notice thereof in accordance with law. The notice shall include –

(1) a statement of the time, place, and nature of public rule making proceedings;

(2) reference to the legal authority under which the rule is proposed; and

(3) either the terms or substance of the proposed rule or a description of the subjects and issues involved.

Except when notice or hearing is required by statute, this subsection does not apply –

(A) to interpretative rules, general statements of policy, or rules of agency organization, procedure, or practice; or

(B) when the agency for good cause finds (and incorporates the finding and a brief statement of reasons therefor in the rules issued) that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest.

(c) After notice required by this section, the agency shall give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity for oral presentation. After consideration of the relevant matter presented, the agency shall incorporate in the rules adopted a concise general statement of their basis and purpose. When rules are required by statute to be made on the record after opportunity for an agency hearing, sections 556 and 557 of this title apply instead of this subsection.

(d) The required publication or service of a substantive rule shall be made not less than 30 days before its effective date, except –

(1) a substantive rule which grants or recognizes an exemption or relieves a restriction;

(2) interpretative rules and statements of policy; or

(3) as otherwise provided by the agency for good cause found and published with the rule.

(e) Each agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule.

# APPENDIX E.3

# 5 U.S.C. § 706

**§ 706. Scope of review**

To the extent necessary to decision and when presented, the reviewing court shall decide all relevant questions of law, interpret constitutional and statutory provisions, and determine the meaning or applicability of the terms of an agency action. The reviewing court shall –

(1) compel agency action unlawfully withheld or unreasonably delayed; and

(2) hold unlawful and set aside agency action, findings, and conclusions found to be –

(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

(B) contrary to constitutional right, power, privilege, or immunity;

(C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right;

(D) without observance of procedure required by law;

(E) unsupported by substantial evidence in a case subject to sections 556 and 557 of this title or otherwise reviewed on the record of an agency hearing provided by statute; or

(F) unwarranted by the facts to the extent that the facts are subject to trial de novo by the reviewing court.

In making the foregoing determinations, the court shall review the whole record or those parts of it cited by a

party, and due account shall be taken of the rule of prejudicial error.

(Pub.L. 89-554, Sept. 6, 1966, 80 Stat. 393.)

## APPENDIX E.4
## 29 U.S.C. § 655

## § 655. Standards

### (a) Promulgation by Secretary of national consensus standards and established Federal standards; time for promulgation; conflicting standards

Without regard to chapter 5 of Title 5 or to the other subsections of this section, the Secretary shall, as soon as practicable during the period beginning with the effective date of this chapter and ending two years after such date, by rule promulgate as an occupational safety or health standard any national consensus standard, and any established Federal standard, unless he determines that the promulgation of such a standard would not result in improved safety or health for specifically designated employees. In the event of conflict among any such standards, the Secretary shall promulgate the standard which assures the greatest protection of the safety or health of the affected employees.

### (b) Procedure for promulgation, modification, or revocation of standards

The Secretary may by rule promulgate, modify, or revoke any occupational safety or health standard in the following manner:

(1) Whenever the Secretary, upon the basis of information submitted to him in writing by an interested person, a representative of any organization of employers or employees, a nationally recognized standards-producing organization, the Secretary of Health and Human Services, the National Institute for Occupational Safety and Health, or a State or

political subdivision, or on the basis of information developed by the Secretary or otherwise available to him, determines that a rule should be promulgated in order to serve the objectives of this chapter, the Secretary may request the recommendations of an advisory committee appointed under section 656 of this title. The Secretary shall provide such an advisory committee with any proposals of his own or of the Secretary of Health and Human Services, together with all pertinent factual information developed by the Secretary or the Secretary of Health and Human Services, or otherwise available, including the results of research, demonstrations, and experiments. An advisory committee shall submit to the Secretary its recommendations regarding the rule to be promulgated within ninety days from the date of its appointment or within such longer or shorter period as may be prescribed by the Secretary, but in no event for a period which is longer than two hundred and seventy days.

(2) The Secretary shall publish a proposed rule promulgating, modifying, or revoking an occupational safety or health standard in the Federal Register and shall afford interested persons a period of thirty days after publication to submit written data or comments. Where an advisory committee is appointed and the Secretary determines that a rule should be issued, he shall publish the proposed rule within sixty days after the submission of the advisory committee's recommendations or the expiration of the period prescribed by the Secretary for such submission.

(3) On or before the last day of the period provided for the submission of written data or comments under paragraph (2), any interested person may file with the Secretary written objections to the proposed rule, stating the grounds therefor and requesting a public hearing on such objections. Within thirty days after the last day for filing such objections, the Secretary shall publish in the Federal Register a notice specifying the occupational safety or health standard to which objections have been filed and a hearing requested, and specifying a time and place for such hearing.

(4) Within sixty days after the expiration of the period provided for the submission of written data or comments under paragraph (2), or within sixty days after the completion of any hearing held under paragraph (3), the Secretary shall issue a rule promulgating, modifying, or revoking an occupational safety or health standard or make a determination that a rule should not be issued. Such a rule may contain a provision delaying its effective date for such period (not in excess of ninety days) as the Secretary determines may be necessary to insure that affected employers and employees will be informed of the existence of the standard and of its terms and that employers affected are given an opportunity to familiarize themselves and their employees with the existence of the requirements of the standard.

(5) The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this subsection, shall set the standard which most adequately assures, to

the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life. Development of standards under this subsection shall be based upon research, demonstrations, experiments, and such other information as may be appropriate. In addition to the attainment of the highest degree of health and safety protection for the employee, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experience gained under this and other health and safety laws. Whenever practicable, the standard promulgated shall be expressed in terms of objective criteria and of the performance desired.

(6)(A) Any employer may apply to the Secretary for a temporary order granting a variance from a standard or any provision thereof promulgated under this section. Such temporary order shall be granted only if the employer files an application which meets the requirements of clause (B) and establishes that (i) he is unable to comply with a standard by its effective date because of unavailability of professional or technical personnel or of materials and equipment needed to come into compliance with the standard or because necessary construction or alteration of facilities cannot be completed by the effective date, (ii) he is taking all available steps to safeguard his employees against the hazards covered by the standard, and (iii) he has an effective program for coming into compliance with the standard as quickly as practicable. Any temporary order issued under this paragraph

shall prescribe the practices, means, methods, operations, and processes which the employer must adopt and use while the order is in effect and state in detail his program for coming into compliance with the standard. Such a temporary order may be granted only after notice to employees and an opportunity for a hearing: *Provided,* That the Secretary may issue one interim order to be effective until a decision is made on the basis of the hearing. No temporary order may be in effect for longer than the period needed by the employer to achieve compliance with the standard or one year, whichever is shorter, except that such an order may be renewed not more than twice (I) so long as the requirements of this paragraph are met and (II) if an application for renewal is filed at least 90 days prior to the expiration date of the order. No interim renewal of an order may remain in effect for longer than 180 days.

(B) An application for a temporary order under this paragraph (6) shall contain:

(i) a specification of the standard or portion thereof from which the employer seeks a variance,

(ii) a representation by the employer, supported by representations from qualified persons having firsthand knowledge of the facts represented, that he is unable to comply with the standard or portion thereof and a detailed statement of the reasons therefor,

(iii) a statement of the steps he has taken and will take (with specific dates) to protect employees against the hazard covered by the standard,

(iv) a statement of when he expects to be able to comply with the standard and what steps he has taken and what steps he will take (with dates specified) to come into compliance with the standard, and

(v) a certification that he has informed his employees of the application by giving a copy thereof to their authorized representative, posting a statement giving a summary of the application and specifying where a copy may be examined at the place or places where notices to employees are normally posted, and by other appropriate means.

A description of how employees have been informed shall be contained in the certification. The information to employees shall also inform them of their right to petition the Secretary for a hearing.

(C) The Secretary is authorized to grant a variance from any standard or portion thereof whenever he determines, or the Secretary of Health and Human Services certifies, that such variance is necessary to permit an employer to participate in an experiment approved by him or the Secretary of Health and Human Services designed to demonstrate or validate new and improved techniques to safeguard the health or safety of workers.

(7) Any standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of

safe use or exposure. Where appropriate, such standard shall also prescribe suitable protective equipment and control or technological procedures to be used in connection with such hazards and shall provide for monitoring or measuring employee exposure at such locations and intervals, and in such manner as may be necessary for the protection of employees. In addition, where appropriate, any such standard shall prescribe the type and frequency of medical examinations or other tests which shall be made available, by the employer or at his cost, to employees exposed to such hazards in order to most effectively determine whether the health of such employees is adversely affected by such exposure. In the event such medical examinations are in the nature of research, as determined by the Secretary of Health and Human Services, such examinations may be furnished at the expense of the Secretary of Health and Human Services. The results of such examinations or tests shall be furnished only to the Secretary or the Secretary of Health and Human Services, and, at the request of the employee, to his physician. The Secretary, in consultation with the Secretary of Health and Human Services, may by rule promulgated pursuant to section 553 of Title 5, make appropriate modifications in the foregoing requirements relating to the use of labels or other forms of warning, monitoring or measuring, and medical examinations, as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard.

(8) Whenever a rule promulgated by the Secretary differs substantially from an existing

national consensus standard, the Secretary shall, at the same time, publish in the Federal Register a statement of the reasons why the rule as adopted will better effectuate the purposes of this chapter than the national consensus standard.

**(c) Emergency temporary standards**

(1) The Secretary shall provide, without regard to the requirements of chapter 5 of Title 5, for an emergency temporary standard to take immediate effect upon publication in the Federal Register if he determines (A) that employees are exposed to grave danger from exposure to substances or agents determined to be toxic or physically harmful or from new hazards, and (B) that such emergency standard is necessary to protect employees from such danger.

(2) Such standard shall be effective until superseded by a standard promulgated in accordance with the procedures prescribed in paragraph (3) of this subsection.

(3) Upon publication of such standard in the Federal Register the Secretary shall commence a proceeding in accordance with subsection (b) of this section, and the standard as published shall also serve as a proposed rule for the proceeding. The Secretary shall promulgate a standard under this paragraph no later than six months after publication of the emergency standard as provided in paragraph (2) of this subsection.

**(d) Variances from standards; procedure**

Any affected employer may apply to the Secretary for a rule or order for a variance from a standard promulgated under this section. Affected employees shall be given notice of each such application and an opportunity to participate in a hearing. The Secretary shall issue such rule or order if he determines on the record, after opportunity for an inspection where appropriate and a hearing, that the proponent of the variance has demonstrated by a preponderance of the evidence that the conditions, practices, means, methods, operations, or processes used or proposed to be used by an employer will provide employment and places of employment to his employees which are as safe and healthful as those which would prevail if he complied with the standard. The rule or order so issued shall prescribe the conditions the employer must maintain, and the practices, means, methods, operations, and processes which he must adopt and utilize to the extent they differ from the standard in question. Such a rule or order may be modified or revoked upon application by an employer, employees, or by the Secretary on his own motion, in the manner prescribed for its issuance under this subsection at any time after six months from its issuance.

**(e) Statement of reasons for Secretary's determinations; publication in Federal Register**

Whenever the Secretary promulgates any standard, makes any rule, order, or decision, grants any exemption or extension of time, or compromises, mitigates, or settles any penalty assessed under this chapter, he shall include

a statement of the reasons for such action, which shall be published in the Federal Register.

**(f) Judicial review**

Any person who may be adversely affected by a standard issued under this section may at any time prior to the sixtieth day after such standard is promulgated file a petition challenging the validity of such standard with the United States court of appeals for the circuit wherein such person resides or has his principal place of business, for a judicial review of such standard. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary. The filing of such petition shall not, unless otherwise ordered by the court, operate as a stay of the standard. The determinations of the Secretary shall be conclusive if supported by substantial evidence in the record considered as a whole.

**(g) Priority for establishment of standards**

In determining the priority for establishing standards under this section, the Secretary shall give due regard to the urgency of the need for mandatory safety and health standards for particular industries, trades, crafts, occupations, businesses, workplaces or work environments. The Secretary shall also give due regard to the recommendations of the Secretary of Health and Human Services regarding the need for mandatory standards in determining the priority for establishing such standards.

(Pub.L. 91-596, § 6, Dec. 29, 1970, 84 Stat. 1593; Pub.L. 96-88, Title V, § 509(b), Oct. 17, 1979, 93 Stat. 695.)

# APPENDIX E.5

# 29 U.S.C. § 660

**§ 660. Judicial review**

**(a) Filing of petition by persons adversely affected or aggrieved; orders subject to review; jurisdiction; venue; procedure; conclusiveness of record and findings of Commission; appropriate relief; finality of judgment**

Any person adversely affected or aggrieved by an order of the Commission issued under subsection (c) of section 659 of this title may obtain a review of such order in any United States court of appeals for the circuit in which the violation is alleged to have occurred or where the employer has its principal office, or in the Court of Appeals for the District of Columbia Circuit, by filing in such court within sixty days following the issuance of such order a written petition praying that the order be modified or set aside. A copy of such petition shall be forthwith transmitted by the clerk of the court to the Commission and to the other parties, and thereupon the Commission shall file in the court the record in the proceeding as provided in section 2112 of Title 28. Upon such filing, the court shall have jurisdiction of the proceeding and of the question determined therein, and shall have power to grant such temporary relief or restraining order as it deems just and proper, and to make and enter upon the pleadings, testimony, and proceedings set forth in such record a decree affirming, modifying, or setting aside in whole or in part, the order of the Commission and enforcing the same to the extent that such order is affirmed or modified. The commencement of proceedings under this subsection shall not, unless ordered by the court, operate as a stay of the order of the Commission.

No objection that has not been urged before the Commission shall be considered by the court, unless the failure or neglect to urge such objection shall be excused because of extraordinary circumstances. The findings of the Commission with respect to questions of fact, if supported by substantial evidence on the record considered as a whole, shall be conclusive. If any party shall apply to the court for leave to adduce additional evidence and shall show to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for the failure to adduce such evidence in the hearing before the Commission, the court may order such additional evidence to be taken before the Commission and to be made a part of the record. The Commission may modify its findings as to the facts, or make new findings, by reason of additional evidence so taken and filed, and it shall file such modified or new findings, which findings with respect to questions of fact, if supported by substantial evidence on the record considered as a whole, shall be conclusive, and its recommendations, if any, for the modification or setting aside of its original order. Upon the filing of the record with it, the jurisdiction of the court shall be exclusive and its judgment and decree shall be final, except that the same shall be subject to review by the Supreme Court of the United States, as provided in section 1254 of Title 28.

**(b) Filing of petition by Secretary; orders subject to review; jurisdiction; venue; procedure; conclusiveness of record and findings of Commission; enforcement of orders; contempt proceedings**

The Secretary may also obtain review or enforcement of any final order of the Commission by filing a petition

for such relief in the United States court of appeals for the circuit in which the alleged violation occurred or in which the employer has its principal office, and the provisions of subsection (a) of this section shall govern such proceedings to the extent applicable. If no petition for review, as provided in subsection (a) of this section, is filed within sixty days after service of the Commission's order, the Commission's findings of fact and order shall be conclusive in connection with any petition for enforcement which is filed by the Secretary after the expiration of such sixty-day period. In any such case, as well as in the case of a noncontested citation or notification by the Secretary which has become a final order of the Commission under subsection (a) or (b) of section 659 of this title, the clerk of the court, unless otherwise ordered by the court, shall forthwith enter a decree enforcing the order and shall transmit a copy of such decree to the Secretary and the employer named in the petition. In any contempt proceeding brought to enforce a decree of a court of appeals entered pursuant to this subsection or subsection (a) of this section, the court of appeals may assess the penalties provided in section 666 of this title, in addition to invoking any other available remedies.

**(c) Discharge or discrimination against employee for exercise of rights under this chapter; prohibition; procedure for relief**

(1) No person shall discharge or in any manner discriminate against any employee because such employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this chapter or has testified or is about to testify in any such

proceeding or because of the exercise by such employee on behalf of himself or others of any right afforded by this chapter.

(2) Any employee who believes that he has been discharged or otherwise discriminated against by any person in violation of this subsection may, within thirty days after such violation occurs, file a complaint with the Secretary alleging such discrimination. Upon receipt of such complaint, the Secretary shall cause such investigation to be made as he deems appropriate. If upon such investigation, the Secretary determines that the provisions of this subsection have been violated, he shall bring an action in any appropriate United States district court against such person. In any such action the United States district courts shall have jurisdiction, for cause shown to restrain violations of paragraph (1) of this subsection and order all appropriate relief including rehiring or reinstatement of the employee to his former position with back pay.

(3) Within 90 days of the receipt of a complaint filed under this subsection the Secretary shall notify the complainant of his determination under paragraph (2) of this subsection.

(Pub.L. 91-596, § 11, Dec. 29, 1970, 84 Stat. 1602: Pub.L. 98-620, Title IV, § 402(32), Nov. 8, 1984, 98 Stat. 3360.)

**APPENDIX E.6**

**29 U.S.C. § 661**

## § 661. Occupational Safety and Health Review Commission

### (a) Establishment; membership; appointment; Chairman

The Occupational Safety and Health Review Commission is hereby established. The Commission shall be composed of three members who shall be appointed by the President, by and with the advice and consent of the Senate, from among persons who by reason of training, education, or experience are qualified to carry out the functions of the Commission under this chapter. The President shall designate one of the members of the Commission to serve as Chairman.

### (b) Terms of office; removal by President

The terms of members of the Commission shall be six years except that (1) the members of the Commission first taking office shall serve, as designated by the President at the time of appointment, one for a term of two years, one for a term of four years, and one for a term of six years, and (2) a vacancy caused by the death, resignation, or removal of a member prior to the expiration of the term for which he was appointed shall be filled only for the remainder of such unexpired term. A member of the Commission may be removed by the President for inefficiency, neglect of duty, or malfeasance in office.

**(c) Omitted**

**(d) Principal office; hearings or other proceedings at other places**

The principal office of the Commission shall be in the District of Columbia. Whenever the Commission deems that the convenience of the public or of the parties may be promoted, or delay or expense may be minimized, it may hold hearings or conduct other proceedings at any other place.

**(e) Functions and duties of Chairman; appointment and compensation of administrative law judges and other employees**

The Chairman shall be responsible on behalf of the Commission for the administrative operations of the Commission and shall appoint such administrative law judges and other employees as he deems necessary to assist in the performance of the Commission's functions and to fix their compensation in accordance with the provisions of chapter 51 and subchapter III of chapter 53 of Title 5 relating to classification and General Schedule pay rates: *Provided,* That assignment, removal and compensation of administrative law judges shall be in accordance with sections 3105, 3344, 5372, and 7521 of Title 5.

**(f) Quorum; official action**

For the purpose of carrying out its functions under this chapter, two members of the Commission shall constitute a quorum and official action can be taken only on the affirmative vote of at least two members.

**(g) Hearings and records open to public; promulgation of rules; applicability of Federal Rules of Civil Procedure**

Every official act of the Commission shall be entered of record, and its hearings and records shall be open to the public. The Commission is authorized to make such rules as are necessary for the orderly transaction of its proceedings. Unless the Commission has adopted a different rule, its proceedings shall be in accordance with the Federal Rules of Civil Procedure.

**(h) Depositions and production of documentary evidence; fees**

The Commission may order testimony to be taken by deposition in any proceeding pending before it at any state of such proceeding. Any person may be compelled to appear and depose, and to produce books, papers, or documents, in the same manner as witnesses may be compelled to appear and testify and produce like documentary evidence before the Commission. Witnesses whose depositions are taken under this subsection, and the persons taking such depositions, shall be entitled to the same fees as are paid for like services in the courts of the United States.

**(i) Investigatory powers**

For the purpose of any proceeding before the Commission, the provisions of section 161 of this title are hereby made applicable to the jurisdiction and powers of the Commission.

**(j) Administrative law judges; determinations; report as final order of Commission**

A[1] administrative law judge appointed by the Commission shall hear, and make a determination upon, any proceeding instituted before the Commission and any motion in connection therewith, assigned to such administrative law judge by the Chairman of the Commission, and shall make a report of any such determination which constitutes his final disposition of the proceedings. The report of the administrative law judge shall become the final order of the Commission within thirty days after such report by the administrative law judge, unless within such period any Commission member has directed that such report shall be reviewed by the Commission.

**(k) Appointment and compensation of administrative law judges**

Except as otherwise provided in this chapter, the administrative law judges shall be subject to the laws governing employees in the classified civil service, except that appointments shall be made without regard to section 5108 of Title 5. Each administrative law judge shall

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[1] So in original. Probably should be "An"

receive compensation at a rate not less than that prescribed for GS-16 under section 5332 of Title 5.

(Pub.L. 91-596, § 12, Dec. 29, 1970, 84 Stat. 1603; Pub.L. 95-251, § 2(a)(7), Mar. 27, 1978, 92 Stat. 183.)

## APPENDIX E.7

## 29 U.S.C. § 666

**§ 666. Civil and criminal penalties**

**(a) Willful or repeated violation**

Any employer who willfully or repeatedly violates the requirements of section 654 of this title, any standard, rule, or order promulgated pursuant to section 655 of this title, or regulations prescribed pursuant to this chapter, may be assessed a civil penalty of not more than $70,000 for each violation, but not less than $5,000 for each willful violation.

**(b) Citation for serious violation**

Any employer who has received a citation for a serious violation of the requirements of section 654 of this title, of any standard, rule, or order promulgated pursuant to section 655 of this title, or of any regulations prescribed pursuant to this chapter, shall be assessed a civil penalty of up to $7,000 for each such violation.

**(c) Citation for violation determined not serious**

Any employer who has received a citation for a violation of the requirements of section 654 of this title, of any standard, rule, or order promulgated pursuant to section 655 of this title, or of regulations prescribed pursuant to this chapter, and such violation is specifically determined not to be of a serious nature, may be assessed a civil penalty of up to $7,000 for each such violation.

**(d) Failure to correct violation**

Any employer who fails to correct a violation for which a citation has been issued under section 658(a) of this title within the period permitted for its correction (which period shall not begin to run until the date of the final order of the Commission in the case of any review proceeding under section 659 of this title initiated by the employer in good faith and not solely for delay or avoidance of penalties), may be assessed a civil penalty of not more than $7,000 for each day during which such failure or violation continues.

**(e) Willful violation causing death to employee**

Any employer who willfully violates any standard, rule, or order promulgated pursuant to section 655 of this title, or of any regulations prescribed pursuant to this chapter, and that violation caused death to any employee, shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than six months, or by both; except that if the conviction is for a violation committed after a first conviction of such person, punishment shall be by a fine of not more than $20,000 or by imprisonment for not more than one year, or by both.

**(f) Giving advance notice of inspection**

Any person who gives advance notice of any inspection to be conducted under this chapter, without authority from the Secretary or his designees, shall, upon conviction, be punished by a fine of not more than $1,000

or by imprisonment for not more than six months, or by both.

**(g) False statements, representations or certification**

Whoever knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to this chapter shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both.

**(h) Omitted**

**(i) Violation of posting requirements**

Any employer who violates any of the posting requirements, as prescribed under the provisions of this chapter, shall be assessed a civil penalty of up to $7,000 for each violation.

**(j) Authority of Commission to assess civil penalties**

The Commission shall have authority to assess all civil penalties provided in this section, giving due consideration to the appropriateness of the penalty with respect to the size of the business of the employer being charged, the gravity of the violation, the good faith of the employer, and the history of previous violations.

**(k) Determination of serious violation**

For purposes of this section, a serious violation shall be deemed to exist in a place of employment if there is a substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment unless the employer did not, and could not with the exercise of reasonable diligence, know of the presence of the violation.

**(l) Procedure for payment of civil penalties**

Civil penalties owed under this chapter shall be paid to the Secretary for deposit into the Treasury of the United States and shall accrue to the United States and may be recovered in a civil action in the name of the United States brought in the United States district court for the district where the violation is alleged to have occurred or where the employer has its principal office.

(Pub.L. 91-596, § 17, Dec. 29, 1970, 84 Stat. 1606; Pub.L. 101-508, Title III, § 3101, Nov. 5, 1990, 104 Stat. 1388-29.)

# APPENDIX E.8

# 29 C.F.R. § 1910.1018

# OCCUPATIONAL SAFETY AND HEALTH STANDARDS SUBPART Z – TOXIC AND HAZARDOUS SUBSTANCES

**(29 CFR 1910 – Subpart Z; 39 FR 23502, June 27, 1974; Amended as shown in Code of Federal Regulations, Revised as of July 1, 1990; 55 FR 32616, Aug. 10, 1990; 55 FR 46950, Nov. 8, 1990; 55 FR 50686, Dec. 10, 1990; 55 FR 51699, Dec. 17, 1990; 56 FR 10378, March 12, 1991; Corrected by 56 FR 24686, May 31, 1991; Amended by 56 FR 26909, June 12, 1991; 56 FR 37651, Aug. 8, 1991; 56 FR 43700, Sept. 4, 1991; 56 FR 57593, Nov. 13, 1991; 56 FR 64175, Dec. 6, 1991, Effective March 6, 1992; 57 FR 2682, Jan. 23, 1992; 57 FR 7878, March 5, 1992; 57 FR 12717, April 13, 1992; 57 FR 19262, May 5, 1992; 57 FR 22307, May 27, 1992; 57 FR 24330, June 8, 1992; Corrected by 57 FR 24701, June 10, 1992; 57 FR 27161, June 18, 1992; 57 FR 29204-29206, July 1, 1992; 57 FR 35666, Aug. 10, 1992; 57 FR 42388, Sept. 14, 1992; 57 FR 49272, Oct. 30, 1992; 57 FR 49649, Nov. 3, 1992; Corrected by 58 FR 21780, April 23, 1993; Amended by 58 FR 35308, 58 FR 35340, June 30, 1993; Corrected by 58 FR 40191, July 27, 1993; Amended by 59 FR 6169, Feb. 9, 1994; 59 FR 35308, April 13, 1994; 59 FR 36699, July 19, 1994; 59 FR 41057, Aug. 10, 1994; 61 FR 5508, Feb. 13, 1996; 61 FR 9245, March 7, 1996)**

**Title 29 – LABOR**

**Subtitle B – Regulations Relating to Labor**

**Chapter XVII – Occupational Safety and Health Administration, Department of Labor**

**Part 1910 – Occupational Safety and Health**

**Subpart Z – Toxic and Hazardous Substances**

**Authority**: Secs. 6, 8, Occupational Safety and Health Act, 29 U.S.C. 655, 657; Secretary of Labor's Order No. 12-71 (36 FR 8754), 9-76 (41 FR 25059), 9-83 (48 FR

35736), or 1-90 (55 FR 9033), as applicable; and 29 CFR Part 1911.

All of Subpart Z, issued under section 6(b) of the Occupational Safety and Health Act, except those substances which have exposure limits listed in Tables Z-1, Z-2 and Z-3 of 29 CFR 1910.1000. The latter were issued under Section 6(a) (29 U.S.C. 655(a)).

Section 1910.1003 through 1910.1018 also issued under 29 U.S.C. 653.

[Authority citation amended by 57 FR 29204, 29205, July 1, 1992; 57 FR 35666, August 10, 1992; 57 FR 42388, September 14, 1992; corrected by 58 FR 21780, April 23, 1993; amended by 58 FR 35308, 35340, June 30, 1993; revised by 59 FR 36699, July 19, 1994; 59 FR 41057, August 10, 1994]

**§1910.1018 Inorganic arsenic.**

[1910.1018 amended by 58 FR 35308, June 30, 1993]

(a) *Scope and application.* This section applies to all occupational exposures to inorganic arsenic except that this section does not apply to employee exposures in agriculture or resulting from pesticide application, the treatment of wood with preservatives or the utilization of arsenically preserved wood.

(b) *Definitions. Action level* means a concentration of inorganic arsenic of 5 micrograms per cubic meter of air (5 $\mu g/m^3$) averaged over any eight (8) hour period.

*Assistant Secretary* means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

*Authorized person* means any person specifically authorized by the employer whose duties require the person to enter a regulated area, or any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring and measuring procedures under paragraph (e) of this section.

*Director* means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

[1910.1018(b) "Director" definition amended by 58 FR 35308, June 30, 1993]

*Inorganic arsenic* means copper aceto-arsenite and all inorganic compounds containing arsenic except arsine, measured as arsenic (As).

(c) *Permissible exposure limit.* The employer shall assure that no employee is exposed to inorganic arsenic at concentrations greater than 10 micrograms per cubic meter of air (10 $\mu g/m^3$), averaged over any 8-hour period.

(d) *Notification of use.*

(1) By October 1, 1978 or within 60 days after the introduction of inorganic arsenic into the workplace, every employer who is required to establish a regulated area in his workplaces shall report in writing to the OSHA area office for each such workplace:

(i) The address of each such workplace;

(ii) The approximate number of employees who will be working in regulated areas; and

(iii) A brief summary of the operations creating the exposure and the actions which the employer intends to take to reduce exposures.

(2) Whenever there has been a significant change in the information required by paragraph (d)(1) of this section the employer shall report the changes in writing within 60 days to the OSHA area office.

(e) *Exposure monitoring* –

(1) *General.*

(i) Determinations of airborne exposure levels shall be made from air samples that are representative of each employee's exposure to inorganic arsenic over an eight (8) hour period.

(ii) For the purposes of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.

(iii) The employer shall collect full shift (for at least 7 continuous hours) personal samples including at least one sample for each shift for each job classification in each work area.

(2) *Initial monitoring.* Each employer who has a workplace or work operation covered by this standard shall monitor each such workplace and work operation to accurately determine the airborne concentration of inorganic arsenic to which employees may be exposed.

(3) *Frequency.*

(i) If the initial monitoring reveals employee exposure to be below the action level the measurements need not be repeated except as otherwise provided in paragraph (e)(4) of this section.

(ii) If the initial monitoring, required by this section, or subsequent monitoring reveals employee exposure to be above the permissible exposure limit, the employer shall repeat monitoring at least quarterly.

(iii) If the initial monitoring, required by this section, or subsequent monitoring reveals employee exposure to be above the action level and below the permissible exposure limit the employee shall repeat monitoring at least every six months.

(iv) The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven (7) days apart, are below the action level at which time the employer may discontinue monitoring for that employee until such time as any of the events in paragraph (e)(4) of this section occur.

(4) *Additional monitoring.* Whenever there has been a production, process, control or personal change which may result in new or additional exposure to inorganic arsenic, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to inorganic arsenic, additional monitoring which complies with paragraph (e) of this section shall be conducted.

(5) *Employee notification.*

(i) Within five (5) working days after the receipt of monitoring results, the employer shall notify each

employee in writing of the results which represent that employee's exposures.

(ii) Whenever the results indicate that the representative employee exposure exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

(6) *Accuracy of measurement.*

(i) The employer shall use a method of monitoring and measurement which has an accuracy (with a confidence level of 95 percent) of not less than plus or minus 25 percent for concentrations of inorganic arsenic greater than or equal to 10 $\mu g/m^3$.

(ii) The employer shall use a method of monitoring and measurement which has an accuracy (with confidence level of 95 percent) of not less than plus or minus 35 percent for concentrations of inorganic arsenic greater than 5 $\mu g/m^3$ but less than 10 $\mu g/m^3$.

(f) *Regulated area* –

(1) *Establishment.* The employer shall establish regulated areas where worker exposures to inorganic arsenic, without regard to the use of respirators, are in excess of the permissible limit.

(2) *Demarcation.* Regulated areas shall be demarcated and segregated from the rest of the workplace in any manner that minimizes the number of persons who will be exposed to inorganic arsenic.

(3) *Access.* Access to regulated areas shall be limited to authorized persons or to persons otherwise authorized by the Act or regulations issued pursuant thereto to enter such areas.

(4) *Provision of respirators.* All persons entering a regulated area shall be supplied with a respirator, selected in accordance with paragraph (h)(2) of this section.

(5) *Prohibited activities.* The employer shall assure that in regulated areas, food or beverages are not consumed, smoking products, chewing tobacco and gum are not used and cosmetics are not applied, except that these activities may be conducted in the lunchrooms, change rooms and showers required under paragraph (m) of this section. Drinking water may be consumed in the regulated area.

(g) *Methods of compliance* –

(1) *Controls.*

(i) The employer shall institute at the earliest possible time but not later than December 31, 1979, engineering and work practice controls to reduce exposures to or below the permissible exposure limit, except to the extent that the employer can establish that such controls are not feasible.

(ii) Where engineering and work practice controls are not sufficient to reduce exposures to or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest levels achievable by these controls and shall be supplemented by the use of

respirators in accordance with paragraph (h) of this section and other necessary personal protective equipment. Employee rotation is not required as a control strategy before respiratory protection is instituted.

(2) *Compliance Program.*

(i) The employer shall establish and implement a written program to reduce exposures to or below the permissible exposure limit by means of engineering and work practice controls.

(ii) Written plans for these compliance programs shall include at least the following:

(A) A description of each operation in which inorganic arsenic is emitted; e.g. machinery used, material processed, controls in place, crew size, operating procedures and maintenance practices;

(B) Engineering plans and studies used to determine methods selected for controlling exposure to inorganic arsenic;

(C) A report of the technology considered in meeting the permissible exposure limit;

(D) Monitoring data;

(E) A detailed schedule for implementation of the engineering controls and work practices that cannot be implemented immediately and for the adaption and implementation of any additional engineering and work practices necessary to meet the permissible exposure limit;

(F) Whenever the employer will not achieve the permissible exposure limit with engineering controls and

work practices by December 31, 1979, the employer shall include in the compliance plan an analysis of the effectiveness of the various controls, shall install engineering controls and institute work practices on the quickest schedule feasible, and shall include in the compliance plan and implement a program to minimize the discomfort and maximize the effectiveness of respirator use; and

(G) Other relevant information.

(iii) Written plans for such a program shall be submitted upon request to the Assistant Secretary and the Director, and shall be available at the worksite for examination and copying by the Assistant Secretary, Director, any affected employee or authorized employee representatives.

(iv) The plans required by this paragraph shall be revised and updated at least every 6 months to reflect the current status of the program.

(h) *Respiratory protection* –

(1) *General.* The employer shall assure that respirators are used where required under this section to reduce employee exposures to below the permissible exposure limit and in emergencies. Respirators shall be used in the following circumstances:

(i) During the time period necessary to install or implement feasible engineering or work practice controls;

(ii) In work operations such as maintenance and repair activities in which the employer establishes that engineering and work practice controls are not feasible;

(iii) In work situations in which engineering controls and supplemental work practice controls are not yet sufficient to reduce exposures to or below the permissible exposure limit; or

(iv) In emergencies.

(2) *Respirator selection.*

(i) Where respirators are required under this section the employer shall select, provide at no cost to the employee and assure the use of the appropriate respirator or combination of respirators from Table I below for inorganic arsenic compounds without significant vapor pressure, or Table II below for inorganic arsenic compounds which have significant vapor pressure.

(ii) Where employee exposures exceed the permissible exposure limit for inorganic arsenic and also exceed the relevant limit for particular gasses such as sulfur dioxide, any air purifying respirator supplied to the employee as permitted by this standard must have a combination high efficiency filter with an appropriate gas sorbent. (See footnote in Table 1)

TABLE I – RESPIRATORY PROTECTION FOR INORGANIC ARSENIC PARTICULATE EXCEPT FOR THOSE WITH SIGNIFICANT VAPOR PRESSURE

| Concentration of inorganic arsenic (as As) or condition of use | Required respirator |
|---|---|
| (i) Unknown or greater or lesser than 20,000 $\mu g/m^3$ (20 $mg/m^3$) or firefighting..... | (A) Any full facepiece self-contained breathing apparatus operated in positive pressure mode. |
| (ii) Not greater than 20,000 $\mu g/m^3$ (20 $mg/m^3$) ..... | (A) Supplied air respirator with full facepiece, hood, or helmet or suit and operated in positive pressure mode. |
| (iii) Not greater than 10,000 $\mu g/m^3$ (10 $mg/m^3$) ..... | (A) Powered air-purifying respirators in all inlet face coverings with high efficiency filters.[1] (B) Half-mask supplied air respirators operated in positive pressure mode. |

| Concentration of inorganic arsenic (as As) or condition of use | Required respirator |
|---|---|
| (iv) Not greater than 500 μg/m³..... | (A) Full facepiece air-purifying respirator equipped with high-efficiency filter.[1] (B) Any full facepiece supplied air respirator. (C) Any full facepiece self-contained breathing apparatus. |
| (v) Not greater than 100 μg/m³ ..... | (A) Half-mask air-purifying respirator equipped with high-efficiency filter.[1] (B) Any half-mask supplied air respirator. |

[1] High-efficiency filter – 99.97 pct efficiency against 0.3 micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.

TABLE II – RESPIRATORY PROTECTION FOR INORGANIC ARSENIC (SUCH AS ARSENIC TRICHLORIDE[2] AND ARSENIC PHOSPHIDE) WITH SIGNIFICANT VAPOR PRESSURE

| Concentration of inorganic arsenic (as As) or condition of use | Required respirator |
|---|---|
| (i) Unknown or greater or lesser than 20,000 $\mu g/m^3$ (20 $mg/m^3$[)] or firefighting ..... | (A) Any full facepiece self-contained breathing apparatus operated in positive pressure mode. |
| (ii) Not greater than 20,000 $\mu g/m^3$ (20 $mg/m^3$) ..... | (A) Supplied air respirator with full facepiece hood, or helmet or suit and operated in positive pressure mode. |
| (iii) Not greater than 10,000 $\mu g/m^3$ (10 $mg/m^3$) ..... | (A) Half-mask[2] supplied air respirator operated in positive pressure mode. |
| (iv) Not greater than 500 $\mu g/m^3$..... | (A) Front or back mounted gas mask equipped with high-efficiency filter[1] and acid gas canister. (B) Any full facepiece supplied air respirator. (C) Any full facepiece self-contained breathing apparatus. |

| Concentration of inorganic arsenic (as As) or condition of use | Required respirator |
|---|---|
| (v) Not greater than 100 μg/m³ ..... | (A) Half-mask[2] air-purifying respirator equipped with high-efficiency filter[1] and acid gas cartridge. (B) Any half-mask supplied air respirator. |

[1] High efficiency filter – 99.97 pct efficiency against 0.3 micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.

[2] Half-mask respirators shall not be used for protection against arsenic trichloride, as it is rapidly absorbed through the skin.

(iii) The employer shall select respirators from among those approved for protection against dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

(3) *Respirator usage.*

(i) The employer shall assure that the respirator issued to the employee exhibits minimum facepiece leakage and that the respirator is fitted properly.

(ii) The employer shall perform qualitative fit tests at the time of initial fitting and at least semi-annually thereafter for each employee wearing respirators, where quantitative fit tests are not required.

(iii) Employers with more than 20 employees wearing respirators shall perform a quantitative face fit test at the time of initial fitting and [at] least semi-annually thereafter for each employee wearing negative pressure respirators. The test shall be used to select facepieces that provide the required protection as prescribed in Table I or II.

(iv) If an employee has demonstrated difficulty in breathing during the fitting test or during use, he or she shall be examined by a physician trained in pulmonary medicine to determine whether the employee can wear a respirator while performing the required duty.

(4) *Respirator program.*

(i) The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134(b), (d), (e) and (f).

(ii) The employer shall permit each employee who uses a filter respirator to change the filter elements whenever an increase in breathing resistance is detected and shall maintain an adequate supply of filter elements for this purpose.

(iii) Employees who wear respirators shall be permitted to leave work areas to wash their face and respirator facepiece to prevent skin irritation associated with respirator use.

(5) *Commencement of respirator use.*

(i) The employer's obligation to provide respirators commences on August 1, 1978 for employees exposed [to] over 500 $\mu g/m^3$ of inorganic arsenic, as soon as possible but not later than October 1, 1978 for employees exposed to over 50 $\mu g/m^3$ of inorganic arsenic, and as soon as possible but not later than December 1, 1978 for employees exposed between 10 and 50 $\mu g/m^3$ of inorganic arsenic.

(ii) Employees with exposures below 50 $\mu g/m^3$ of inorganic arsenic may choose not to wear respirators until December 31, 1979.

(iii) After December 1, 1978 any employee required to wear air-purifying respirators may choose, and if so chosen the employer must provide, if it will give proper protection, a powered air purifying respirator and in addition if necessary a combination dust and acid gas respirator for times where exposures to gases are over the relevant exposure limits.

(i) [Reserved]

(j) *Protective work clothing and equipment* –

(1) *Provision and use.* Where the possibility of skin or eye irritation from inorganic arsenic exists, and for all workers working in regulated areas, the employer shall provide at no cost to the employee and assure that employees use appropriate and clean protective work clothing and equipment such as, but not limited to:

(i) Coveralls or similar full body work clothing;

(ii) Gloves, and shoes or coverlets;

(iii) Face shields or vented goggles when necessary to prevent eye irritation, which comply with the requirements of §1910.133(a)(2)-(a)(6); and

(iv) Impervious clothing for employees subject to exposure to arsenic trichloride.

(2) *Cleaning and replacement.*

(i) The employer shall provide the protective clothing required in paragraph (j)(1) of this section in a freshly laundered and dry condition at least weekly, and daily if the employee works in areas where exposures are over 100 $\mu g/m^3$ of inorganic arsenic or in areas where more frequent washing is needed to prevent skin irritation.

(ii) The employer shall clean, launder, or dispose of protective clothing required by paragraph (j)(1) of this section.

(iii) The employer shall repair or replace the protective clothing and equipment as needed to maintain their effectiveness.

(iv) The employer shall assure that all protective clothing is removed at the completion of a work shift

only in change rooms prescribed in paragraph (m)(1) of this section.

(v) The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change-room which prevents dispersion of inorganic arsenic outside the container.

(vi) The employer shall inform in writing any person who cleans or launders clothing required by this section, of the potentially harmful effects including the carcinogenic effects of exposure to inorganic arsenic.

(vii) The employer shall assure that the containers of contaminated protective clothing and equipment in the workplace or which are to be removed from the workplace are labelled as follows:

CautionClothing contaminated with inorganic arsenic; do not remove dust by blowing or shaking. Dispose of inorganic arsenic contaminated wash water in accordance with applicable local, State or Federal regulations.

(viii) The employer shall prohibit the removal of inorganic arsenic from protective clothing or equipment by blowing or shaking.

(k) *Housekeeping* –

(1) *Surfaces.* All surfaces shall be maintained as free as practicable of accumulations of inorganic arsenic.

(2) *Cleaning floors.* Floors and other accessible surfaces contaminated with inorganic arsenic may not be cleaned by the use of compressed air, and shoveling and brushing may be used only where vacuuming or other

relevant methods have been tried and found not to be effective.

(3) *Vacuuming.* Where vacuuming methods are selected, the vacuums shall be used and emptied in a manner to minimize the reentry of inorganic arsenic into the workplace.

(4) *Housekeeping plan.* A written housekeeping and maintenance plan shall be kept which shall list appropriate frequencies for carrying out housekeeping operations, and for cleaning and maintaining dust collection equipment. The plan shall be available for inspection by the Assistant Secretary.

(5) *Maintenance of equipment.* Periodic cleaning of dust collection and ventilation equipment and checks of their effectiveness shall be carried out to maintain the effectiveness of the system and a notation kept of the last check of effective and cleaning or maintenance.

(l) [Reserved]

(m) *Hygiene facilities and practices* –

(1) *Change rooms.* The employer shall provide for employees working in regulated areas or subject to the possibility of skin or eye irritation from inorganic arsenic, clean change rooms equipped with storage facilities for street clothes and separate storage facilities for protective clothing and equipment in accordance with 29 CFR 1910.141(e).

(2) *Showers.*

(i) The employer shall assure that employees working in regulated areas or subject to the possibility of skin

or eye irritation from inorganic arsenic shower at the end of the work shift.

(ii) The employer shall provide shower facilities in accordance with §1910.141(d)(3).

(3) *Lunchrooms.*

(i) The employer shall provide for employees working in regulated areas, lunchroom facilities which have a temperature controlled, positive pressure, filtered air supply, and which are readily accessible to employees working in regulated areas.

(ii) The employer shall assure that employees working in the regulated area or subject to the possibility of skin or eye irritation from exposure to inorganic arsenic wash their hands and face prior to eating.

(4) *Lavatories.* The employer shall provide lavatory facilities which comply with §1910.141(d)(1) and (2).

(5) *Vacuuming clothes.* The employer shall provide facilities for employees working in areas where exposure, without regard to the use of respirators, exceeds 100 $\mu g/m^3$ to vacuum their protective clothing and clean or change shoes worn in such areas before entering change rooms, lunchrooms or shower rooms required by paragraph (j) of this section and shall assure that such employees use such facilities.

(6) *Avoidance of skin irritation.* The employer shall assure that no employee is exposed to skin or eye contact with arsenic trichloride, or to skin or eye contact with liquid or particulate inorganic arsenic which is likely to cause skin or eye irritation.

(n) *Medical surveillance* –

(1) *General* –

(i) *Employees covered.* The employer shall institute a medical surveillance program for the following employees:

(A) All employees who are or will be exposed above the action level, without regard to the use of respirators, at least 30 days per year; and

(B) All employees who have been exposed above the action level, without regard to respirator use, for 30 days or more per year for a total of 10 years or more of combined employment with the employer or predecessor employers prior to or after the effective date of this standard. The determination of exposures prior to the effective date of this standard shall be based upon prior exposure records, comparison with the first measurements taken after the effective date of this standard, or comparison with records of exposures in areas with similar processes, extent of engineering controls utilized and materials used by that employer.

(ii) *Examination by physician.* The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee, without loss of pay and at a reasonable time and place.

(2) *Initial examinations.* By December 1, 1978, for employees initially covered by the medical provisions of this section, or thereafter at the time of initial assignment to an area where the employee is likely to be exposed

over the action level at least 30 days per year, the employer shall provide each affected employee an opportunity for a medical examination, including at least the following elements:

(i) A work history and a medical history which shall include a smoking history and the presence and degree of respiratory symptoms such as breathlessness, cough, sputum production and wheezing.

(ii) A medical examination which shall include at least the following:

(A) A 14" by 17" posterior-anterior chest X-ray and International Labor Office UICC/Cincinnati (ILO U/C) rating;

(B) A nasal and skin examination;

(C) A sputum cytology examination; and

(D) Other examinations which the physician believes appropriate because of the employees exposure to inorganic arsenic or because of required respirator use.

(3) *Periodic examinations.*

(i) The employer shall provide the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii)(A), (B), and (D) at least annually for covered employees who are under 45 years of age with fewer than 10 years of exposure over the action level without regard to respirator use.

(ii) The employer shall provide the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii) of this section at least semi-annually for other covered employees.

(iii) Whenever a covered employee has not taken the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii) of this section within six (6) months preceding the termination of employment, the employer shall provide such examinations to the employee upon termination of employment.

(4) *Additional examinations.* If the employee for any reason develops signs or symptoms commonly associated with exposure to inorganic arsenic the employer shall provide an appropriate examination and emergency medical treatment.

(5) *Information provided to the physician.* The employer shall provide the following information to the examining physician:

(i) A copy of this standard and its appendices;

(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(iii) The employee's representative exposure level or anticipated exposure level;

(iv) A description of any personal protective equipment used or to be used; and

(v) Information from previous medical examinations of the affected employee which is not readily available to the examining physician.

(6) *Physician's written opinion.*

(i) The employer shall obtain a written opinion from the examining physician which shall include:

(A) The results of the medical examination and tests performed;

(B) The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to inorganic arsenic;

(C) Any recommended limitations upon the employee's exposure to inorganic arsenic or upon the use of protective clothing or equipment such as respirators; and

(D) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further explanation or treatment.

(ii) The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.

(iii) The employer shall provide a copy of the written opinion to the affected employee.

(o) *Employee information and training* –

(1) *Training program.*

(i) The employer shall institute a training program for all employees who are subject to exposure to inorganic arsenic above the action level without regard to respirator use, or for whom there is the possibility of skin or eye irritation from inorganic arsenic. The employer shall assure that those employees participate in the training program.

(ii) The training program shall be provided by October 1, 1978, for employees covered by this provision, at the time of initial assignment for those subsequently covered by this provision, and at least annually for other covered employees thereafter; and the employer shall assure that each employee is informed of the following:

[1910.1018(o)(1)(ii) amended by 61 FR 9245, March 7, 1996]

(A) The information contained in Appendix A;

(B) The quantity, location, manner of use, storage, sources of exposure, and the specific nature of operations which could result in exposure to inorganic arsenic as well as any necessary protective steps;

(C) The purpose, proper use, and limitation of respirators;

(D) The purpose and a description of the medical surveillance program as required by paragraph (n) of this section;

(E) The engineering controls and work practices associated with the employee's job assignment; and

(F) A review of this standard.

(2) *Access to training materials.*

(i) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(ii) The employer shall provide; upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

(p) *Signs and labels* –

(1) *General.*

(i) The employer may use labels or signs required by other statutes, regulations, or ordinances in addition to, or in combination with, signs and labels required by this paragraph.

(ii) The employer shall assure that no statement appears on or near any sign or label required by this paragraph which contradicts or detracts from the meaning of the required sign or label.

(2) *Signs.*

(i) The employer shall post signs demarcating regulated areas bearing the legend;

**DANGER**

**INORGANIC ARSENIC**

**CANCER HAZARD**

**AUTHORIZED PERSONNEL ONLY**

**NO SMOKING OR EATING**

**RESPIRATOR REQUIRED**

(ii) The employer shall assure that signs required by this paragraph are illuminated and cleaned as necessary so that the legend is readily visible.

(3) *Labels.* The employer shall apply precautionary labels to all shipping and storage containers of inorganic arsenic, and to all products containing inorganic arsenic except when the inorganic arsenic in the product is bound in such a manner so as to make unlikely the possibility of airborne exposure to inorganic arsenic.

(Possible examples of products not requiring labels are semiconductors, light emitting diodes and glass). The label shall bear the following legend:

**DANGER**

**CONTAINS INORGANIC ARSENIC**

**CANCER HAZARD**

**HARMFUL IF INHALED OR SWALLOWED**

**USE ONLY WITH ADEQUATE VENTILATION**

**OR RESPIRATORY PROTECTION**

(q) *Recordkeeping* –

(1) *Exposure monitoring.*

(i) The employer shall establish and maintain an accurate record of all monitoring required by paragraph (e) of this section.

(ii) This record shall include:

(A) The date(s), number, duration location, and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure where applicable;

(B) A description of the sampling and analytical methods used and evidence of their accuracy;

(C) The type of respiratory protective devices worn, if any;

(D) Name, social security number, and job classification of the employees monitored and of all other employees whose exposure the measurement is intended to represent; and

(E) The environmental variables that could affect the measurement of the employee's exposure.

(ii) The employer shall maintain these monitoring records for at least 40 years or for the duration of employment plus 20 years, whichever, is longer.

(2) *Medical surveillance.*

(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by paragraph (n) of this section.

(ii) This record shall include:

(A) The name, social security number, and description of duties of the employee;

(B) A copy of the physician's written opinions;

(C) Results of any exposure monitoring done for that employee and the representative exposure levels supplied to the physician; and

(D) Any employee medical complaints related to exposure to inorganic arsenic.

(iii) The employer shall in addition keep, or assure that the examining physician keeps, the following medical records:

(A) A copy of the medical examination results including medical and work history required under paragraph (n) of this section;

(B) A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to that information;

(C) The initial X-ray;

(D) The X-rays for the most recent 5 years;

(E) Any X-rays with a demonstrated abnormality and all subsequent X-rays;

(F) The initial cytologic examination slide and written description;

(G) The cytologic examination slide and written description for the most recent 5 years; and

(H) Any cytologic examination slides with demonstrated atypia, if such atypia persists for 3 years, and all subsequent slides and written descriptions.

(iv) The employer shall maintain or assure that the physician maintains those medical records for at least 40 years, or for the duration of employment plus 20 years whichever is longer.

(3) *Availability.*

(i) The employer shall make available upon request all records required to be maintained by paragraph (q) of this section to the Assistant Secretary and the Director for examination and copying.

(ii) Records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.20 (a) through (e) and (g) through (i).

(4) *Transfer of records.*

(i) Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by this section.

(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records required to be maintained by this section for the prescribed period, these records shall be transmitted to the Director.

(iii) At the expiration of the retention period for the records required to be maintained by this section, the employer shall notify the Director at least 3 months prior to the disposal of such records and shall transmit those records to the Director if he requests them within that period.

(iv) The employer shall also comply with any additional requirements involving the transfer of records set [forth] in 29 CFR 1910.20(h).

(r) *Observation of monitoring* –

(1) *Employee observation.* The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to inorganic arsenic conducted pursuant to paragraph (e) of this section.

(2) *Observation procedures.*

(i) Whenever observation of the monitoring of employee exposure to inorganic arsenic requires entry into an area where the use of respirators, protective clothing, or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing, and such equipment, and shall require the observer to comply with all other applicable safety and health procedures.

(ii) Without interfering with the monitoring, observers shall be entitled to;

(A) Receive an explanation of the measurement procedures;

(B) Observe all steps related to the monitoring of inorganic arsenic performed at the place of exposure; and

(C) Record the results obtained or receive copies of the results when returned by the laboratory.

(s) *Effective date.* This standard shall become effective August 1, 1978.

(t) *Appendices.* The information contained in the appendices to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

(u) *Startup dates* –

(1) *General.* The startup dates of requirements of this standard shall be the effective date of this standard unless another startup date is provided for either in other paragraphs of this section or in this paragraph.

(2) *Monitoring.* Initial monitoring shall be commenced on August 1, 1978, and shall be completed by September 15, 1978.

(3) *Regulated areas.* Regulated areas required to be established as a result of initial monitoring shall be set up as soon as possible after the results of that monitoring is known and no later than October 1, 1978.

(4) *Compliance program.* The written program required by paragraph (g)(2) as a result of initial monitoring shall be made available for inspection and copying as soon as possible and no later than December 1, 1978.

(5) *Hygiene and lunchroom facilities.* Construction plans for change rooms, showers, lavatories, and lunchroom facilities shall be completed no later than December 1, 1978, and these facilities shall be constructed and in use no later than July 1, 1979. However, if as part of the compliance plan it is predicted by an independent engineering firm that engineering controls and work practices will reduce exposures below the permissible exposure limit by December 31, 1979, for affected employees, then such facilities need not be completed until 1 year after the engineering controls are completed or December 31, 1980, whichever is earlier, if such controls have not in fact succeeded in reducing exposure to below the permissible exposure limit.

(6) *Summary of startup dates set forth elsewhere in this standard.*

STARTUP DATES

August 1, 1978 – Respirator use over 500 $\mu g/m^3$.

AS SOON AS POSSIBLE BUT NO LATER THAN

September 15, 1978 – Completion of initial monitoring.

October 1, 1978 – Complete establishment of regulated areas. Respirator use for employees exposed above 50 $\mu g/m^3$. Completion of initial training. Notification of use.

December 1, 1978 – Respirator use over 10 $\mu g/m^3$. Completion of initial medical. Completion of compliance plan. Optional use of powered air-purifying respirators.

July 1, 1979 – Completion of lunch rooms and hygiene facilities.

December 31, 1979 – Completion of engineering controls.

All other requirements of the standard have as their startup date August 1, 1978.

[1910.1018 OMB control number removed by 61 FR 5508, Feb. 13, 1996]

**Appendix A to § 1910.1018 – Inorganic Arsenic Substance Information Sheet**

I. SUBSTANCE IDENTIFICATION

A. *Substance.* Inorganic Arsenic.

B. *Definition.* Copper acetoarsenite, arsenic and all inorganic compounds containing arsenic except arsine, measured as arsenic (As).

C. *Permissible Exposure Limit.* 10 micrograms per cubic meter of air as determined as an average over an 8-hour period. No employee may be exposed to any skin or eye contact with arsenic trichloride or to skin or eye contact likely to cause skin or eye irritation.

D. *Regulated Areas.* Only employees authorized by your employer should enter a regulated area.

## II. HEALTH HAZARD DATA

A. *Comments.* The health hazard of inorganic arsenic is high.

B. *Ways in which the chemical affects your body.* Exposure to airborne concentrations of inorganic arsenic may cause lung cancer, and can be a skin irritant. Inorganic arsenic may also affect your body if swallowed. One compound in particular, arsenic trichloride, is especially dangerous because it can be absorbed readily through the skin. Because inorganic arsenic is a poison, you should wash your hands thoroughly prior to eating or smoking.

## III. PROTECTIVE CLOTHING AND EQUIPMENT

A. *Respirators.* Respirators will be provided by your employer at no cost to you for routine use if your employer is in the process of implementing engineering and work practice controls or where engineering and work practice controls are not feasible or insufficient. You must wear respirators for non-routine activities or in emergency situations where you are likely to be exposed to levels of inorganic arsenic in excess of the permissible exposure limit. Since how well your respirator fits your face is very important, your employer is required to conduct fit tests to make sure the respirator seals properly when you wear it. These tests are simple and rapid and will be explained to you during training sessions.

B. *Protective clothing.* If you work in a regulated area, your employer is required to provide at no cost to you, and you must wear, appropriate, clean, protective clothing and equipment. The purpose of this equipment

is to prevent you from bringing to your home arsenic-contaminated dust and to protect your body from repeated skin contact with inorganic arsenic likely to cause skin irritation. This clothing should include such items as coveralls or similar full-body clothing, gloves, shoes or coverlets, and aprons. Protective equipment should include face shields or vented goggles, where eye irritation may occur.

## IV. HYGIENE FACILITIES AND PRACTICES

You must not eat, drink, smoke, chew gum or tobacco, or apply cosmetics in the regulated area, except that drinking water is permitted. If you work in a regulated area your employer is required to provide lunchrooms and other areas for these purposes.

If you work in a regulated area, your employer is required to provide showers, washing facilities, and change rooms. You must wash your face, and hands before eating and must shower at the end of the work shift. Do not take used protective clothing out of change rooms without your employer's permission. Your employer is required to provide for laundering or cleaning of your protective clothing.

## V. SIGNS AND LABELS

Your employer is required to post warning signs and labels for your protection. Signs must be posted in regulated areas. The signs must warn that a cancer hazard is present, that only authorized employees may enter the

area, and that no smoking or eating is allowed, and that respirators must be worn.

## VI. MEDICAL EXAMINATIONS

If your exposure to arsenic is over the Action Level (5 $\mu g/m^3$) – (including all persons working in regulated areas) at least 30 days per year, or you have been exposed to arsenic for more than 10 years over the Action Level, your employer is required to provide you with a medical examination. The examination shall be every 6 months for employees over 45 years old or with more than 10 years exposure over the Action Level and annually for other covered employees. The medical examination must include a medical history; a chest x-ray; skin examination; nasal examination and sputum cytology exam for the early detection of lung cancer. The cytology exams are only included in the initial exam and examinations given after you are either 45 years or older or have 10 or more years employment over the Action Level. The examining physician will provide a written opinion to your employer containing the results of the medical exams. You should also receive a copy of this opinion. The physician must not tell your employer any conditions he detects unrelated to occupational exposure to arsenic but must tell you those conditions.

## VII. OBSERVATION OF MONITORING

Your employer is required to monitor your exposure to arsenic and you or your representatives are entitled to observe the monitoring procedure. You are entitled to receive an explanation of the measurement procedure,

and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you must also be provided with and must wear the protective clothing and equipment.

## VIII. ACCESS TO RECORDS

You or your representative are entitled to records of your exposure to inorganic arsenic and your medical examination records if you request your employer to provide them.

## IX. TRAINING AND NOTIFICATION

Additional information on all of these items plus training as to hazards of exposure to inorganic arsenic and the engineering and work practice controls associated with your job will also be provided by your employer. If you are exposed over the permissible exposure limit, your employer must inform you of that fact and the actions he is taking to reduce your exposures.

**Appendix B to § 1910.1018 – Substance Technical Guidelines**

### ARSENIC, ARSENIC TRIOXIDE, ARSENIC TRICHLORIDE (THREE EXAMPLES)

*I. Physical and chemical properties*

A. Arsenic (metal).

1. Formula: As.

2. Appearance: Gray metal.

3. Melting point: Sublimes without melting at 613C.

4. Specific Gravity (H20=1):5.73.

5. Solubility in water: Insoluble.

B. Arsenic Trioxide.

1. Formula: As203, (As406).

2. Appearance: White powder.

3. Melting point: 315C.

4. Specific Gravity (H20=1):3.74.

5. Solubility in water: 3.7 grams in 100cc of water at 20c.

C. Arsenic Trichloride (liquid).

1. Formula: AsC13.

2. Appearance: Colorless or pale yellow liquid.

3. Melting point: -8.5C.

4. Boiling point: 130.2C.

5. Specific Gravity (H20=1):2.16 at 20C.

6. Vapor Pressure: 10mm Hg at 23.5C.

7. Solubility in Water: Decomposes in water.

II. *Fire, explosion and reactivity data.*

A. Fire: Arsenic, arsenic Trioxide and Arsenic Trichloride are nonflammable.

B. Reactivity:

1. Conditions Contributing to instability: Heat.

2. Incompatibility: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.

III. *Monitoring and Measurement Procedures*

Samples collected should be full shift (at least 7-hour) samples. Sampling should be done using a personal sampling pump at a flow rate of 2 liters per minute. Samples should be collected on 0.8 micrometer pore size membrane filter (37mm diameter). Volatile arsenicals such as arsenic trichloride can be most easily collected in a midget bubbler filled with 15 ml. of 0.1 N NaOH.

The method of sampling and analysis should have an accuracy of not less than ±25 percent (with a confidence limit of 95 percent) for 10 micrograms per cubic meter of air (10 $\mu g/m^3$) and ±35 percent (with a confidence limit of 95 percent) for concentrations of inorganic arsenic between 5 and 10 $\mu g/m^3$.

**Appendix C to § 1910.1018 – Medical Surveillance Guidelines**

**I. GENERAL**

Medical examinations are to be provided for all employees exposed to levels of inorganic arsenic above the action level (5 $\mu g/m^3$) for at least 30 days per year (which would include among others, all employees, who work in regulated areas). Examinations are also to be provided to all employees who have had 10 years or more

exposure above the action level for more than 30 days per year while working for the present or predecessor employer though they may no longer be exposed above the level.

An initial medical examination is to be provided to all such employees by December 1, 1978. In addition, an initial medical examination is to be provided to all employees who are first assigned to areas in which worker exposure will probably exceed 5 $\mu g/m^3$ (after the effective date of this standard) at the time of initial assignment. In addition to its immediate diagnostic usefulness, the initial examination will provide a baseline for comparing future test results. The initial examination must include as a minimum the following elements:

(1) A work and medical history, including a smoking history, and presence and degree of respiratory symptoms such as breathlessness, cough, sputum production, and wheezing;

(2) A 14" by 17" posterior-anterior chest X-ray and an International Labor Office UICC/Cincinnati (ILO U/C) rating;

(3) A nasal and skin examination;

(4) A Sputum Cytology examination; and

(5) Other examinations which the physician believes appropriate because of the employee's exposure to inorganic arsenic or because of required respirator use.

Periodic examinations are also to be provided to the employees listed above. The periodic examinations shall be given annually for those covered employees 45 years of age or less with fewer than 10 years employment in

areas where employee exposure exceeds the action level (5 $\mu g/m^3$). Periodic examinations need not include sputum cytology and only an updated medical history is required.

Periodic examinations for other covered employees, shall be provided every six (6) months. These examinations shall include all tests required in the initial examination, except that the medical history need only be updated.

The examination contents are minimum requirements. Additional tests such as lateral and oblique X-rays or pulmonary function tests may be useful. For workers exposed to three arsenicals which are associated with lymphatic cancer, copper acetoarsenite, potassium arsenite, or sodium arsenite the examination should also include palpation of superficial lymph nodes and complete blood count.

## II. NONCARCINOGENIC EFFECTS

The OSHA standard is based on minimizing risk of exposed workers dying of lung cancer from exposure to inorganic arsenic. It will also minimize skin cancer from such exposures.

The following three sections quoted from "Occupational Diseases: A Guide to Their Recognition", Revised Edition, June 1977, National Institute for Occupational Safety and Health is included to provide information on the nonneoplastic effects of exposure to inorganic arsenic. Such effects should not occur if the OSHA standards are followed.

A. *Local* – Trivalent arsenic compounds are corrosive to the skin. Brief contact has no effect but prolonged contact results in a local hyperemia and later vesicular or pustular eruption. The moist mucous membranes are most sensitive to the irritant action. Conjunctiva, moist and macerated areas of skin, the eyelids, the angles of the ears, nose, mouth, and respiratory mucosa are also vulnerable to the irritant effects. The wrists are common sites of dermatitis, as are the genitalia if personal hygiene is poor. Perforations of the nasal septum may occur. Arsenic trioxide and pentoxide are capable of producing skin sensitization and contact dermatitis. Arsenic is also capable of producing keratoses, especially of the palms and soles.

B. *Systemic* – The acute toxic effects of arsenic are generally seen following ingestion of inorganic arsenical compounds. This rarely occurs in an industrial setting. Symptoms develop within 1/2 to 4 hours following ingestion and are usually characterized by constriction of the throat followed by dysphagia, epigastric pain, vomiting, and watery diarrhea. Blood may appear in vomitus and stools. If the amount ingested is sufficiently high, shock may develop due to severe fluid loss, and death may ensue in 24 hours. If the acute effects are survived, exfoliative dermatitis and peripheral neuritis may develop.

Cases of acute arsenical poisoning due to inhalation are exceedingly rare in industry. When it does occur, respiratory tract symptoms – cough, chest pain, dyspnea – giddiness, headache, and extreme general weakness precede gastrointestinal symptoms. The acute toxic symptoms of trivalent arsenical poisoning are due to severe

inflammation of the mucous membranes and greatly increased permeability of the blood capillaries.

Chronic arsenical poisoning due to ingestion is rare and generally confined to patients taking prescribed medications. However, it can be a concomitant of inhaled inorganic arsenic from swallowed sputum and improper eating habits. Symptoms are weight loss, nausea and diarrhea alternating with constipation, pigmentation and eruption of the skin, loss of hair, and peripheral neuritis. Chronic hepatitis and cirrhosis have been described. Polyneuritis may be the salient feature, but more frequently there are numbness and parasthenias of "glove and stocking" distribution. The skin lesions are usually melanotic and keratotic and may occasionally take the form of an intradermal cancer of the squamous cell type, but without infiltrative properties. Horizontal white lines (striations) on the fingernails and toenails are commonly seen in chronic arsenical poisoning and are considered to be a diagnostic accompaniment of arsenical polyneuritis.

Inhalation of inorganic arsenic compounds is the most common cause of chronic poisoning in the industrial situation. This condition is divided into three phases based on signs and symptoms.

First Phase: The worker complains of weakness, loss of appetite, some nausea, occasional vomiting, a sense of heaviness in the stomach, and some diarrhea.

Second Phase: The worker complains of conjunctivitis, a catarrhal state of the mucous membranes of the nose, larynx, and respiratory passage. Coryza, hoarseness, and mild tracheobronchitis may occur. Perforation of the nasal septum is common, and is probably the most

typical lesion of the upper respiratory tract in occupational exposure to arsenical dust. Skin lesions, eczematoid and allergic in type, are common.

Third Phase: The worker complains of symptoms of peripheral neuritis, initially of hands and feet, which is essentially sensory. In more severe cases, motor paralyses occur; the first muscles affected are usually the toe extensors and the peronei. In only the most severe cases will paralysis of flexor muscles of the feet or of the extensor muscles of hands occur.

Liver damage from chronic arsenical poisoning is still debated, and as yet the question is unanswered. In cases of chronic and acute arsenical poisoning, toxic effects to the myocardium have been reported based on EKG changes. These findings, however, are now largely discounted and the EKG changes are ascribed to electrolyte disturbances concomitant with arsenicalism. Inhalation of arsenic trioxide and other inorganic arsenical dusts does not give rise to radiological evidence or pneumoconiosis. Arsenic does have a depressant effect upon the bone marrow, with disturbances of both erythropoiesis and myelopoiesis.

## Bibliography

Dinman, B. D. 1960. Arsenic; chronic human intoxication. J. Occup. Med. 2:137.

Elkins, H. B. 1959. The Chemistry of Industrial Toxicology, 2nd ed. John Wiley and Sons, New York.

Holmquist, L. 1951. Occupational arsenical dermatitis; a study among employees at a copper-ore smelting works including investigations of skin reactions to contact with arsenic compounds. Acta. Derm. Venereol. (Supp. 26) 31:1.

Pinto, S. S., and C. M. McGill. 1953. Arsenic trioxide exposure in industry. Ind. Med. Surg. 22:281.

Pinto, S. S., and K. W. Nelson. 1976. Arsenic toxicology and industrial exposure. Annu. Rev. Pharmacol. Toxicol. 16:95.

Vallee, B. L., D. D. Ulmer, and W. E. C. Wacker. 1960. Arsenic toxicology and biochemistry. AMA Arch. Indust. Health 21:132.

## III. SPUTUM CYTOLOGY

Sputum can be collected by aerosol inhalation during the medical exam or by spontaneous early morning cough at home. Sputum is induced by transoral inhalation of an aerosolized solution of eight per cent (8 percent) sodium chloride in water. After inhaling as few as three to five breaths the subject usually yields an adequate sputum. All sputum should be collected directly into sixty percent (60 percent) alcohol.

Scientific evidence suggests that chest X-rays and sputum cytology should be used together as screening tests for lung tests for lung cancer in high risk populations such as workers exposed to inorganic arsenic. The tests are to be performed every six months on workers who are 45 years of age or older or have worked in the regulated area for 10 or more years. Since the tests seem

to be complementary, it may be advantageous to alternate the test procedures. For instance, chest X-rays could be obtained in June and December and sputum cytologies could be obtained in March and September. Facilities for providing necessary diagnostic investigation should be readily available as well as chest physicians, surgeons, radiologists, pathologists and immunotherapists to provide any necessary treatment services.

**APPENDIX E.9**
**Excerpts from 43 Fed. Reg. pp. 19584-19585**
**(May 5, 1978)**

**Title 29 – Labor**

**CHAPTER XVII – OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, DEPARTMENT OF LABOR**

**PART 1910 – OCCUPATIONAL SAFETY AND HEALTH STANDARDS**

**Occupational Exposure to Inorganic Arsenic**

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SUPPLEMENTAL INFORMATION:

INTRODUCTION

This permanent occupational safety and health standard is issued pursuant to sections 6(b) and 8(c) of the Occupational Safety and Health Act of 1970 (the Act) (84 Stat. 1593, 1599; 29 U.S.C. 655, 657), the Secretary of Labor's Order No. 8-76 (41 FR 25059) and 29 CFR Part 1911. The new standard on occupational exposure to inorganic arsenic which appears at 29 CFR 1910.1018, applies to all employments in all industries covered by the Act with the following exceptions. For the reasons explained below, the standard does not apply to pesticide application, agriculture, and the treatment and use of arsenically preserved wood.

This document also amends Table Z-1 of 29 CFR 1910.1000. Entries for calcium arsenate and lead arsenate are deleted because they are replaced by the new standard. The existing entry, "Arsenic and its compounds (as As) – 0.5 mg/m$^3$," is amended to read "Organic arsenic and its compounds (as As) – 0.5 mg/m$^3$," The existing entry covers both organic and inorganic arsenicals. As the

new standard covers inorganic arsenic, the entry in Table Z-1 is accordingly amended to clarify that it only covers organic arsenicals. The existing entry in Table 1 for arsine remains unchanged for the reasons discussed below.

Pursuant to section 4(b)(2) of the Act. The Occupational Safety and Health Administration (OSHA) has determined that this standard is more effective than the corresponding standards now applicable to the maritime and construction industries and currently contained in Subpart B of Part 1910, and Parts 1915, 1916, 1917, 1918, and 1926 of Title 29. Code of Federal Regulations. Therefore, those corresponding standards are superseded by the new inorganic arsenic standard in § 1910.1018. A new paragraph (e) is added to § 1910.19 to clarify the applicability of this new inorganic arsenic standard to the construction and maritime industries.

## I. Background

Arsenic (As) is commonly present in amounts ranging from less than 0.001 percent to 6 percent in sulfide ores mined for their copper, lead, zinc, gold, and silver content. Arsenic is also widely distributed naturally in small amounts (2-5 ppm) throughout the earth's crust. For example, it is found in iron ore and coal. Further, trace amounts of organic arsenic (less than 1 ppm) are naturally present in most living organisms including those man uses for food.

Approximately 97 percent of arsenic enters end-product manufacture in the form of arsenic trioxide ($As_2O_3$ or "white arsenic"). This compound, which is used in the synthesis of many other arsenic compounds, is released

by and obtained as a by-product of the smelting of sulfide ores of copper, lead, and zinc. Arsenic is generally regarded, however, as a troublesome impurity in these metals which is eliminated through the smelting process. The Tacoma, Wash., facility of ASARCO, Inc. (formerly the American Smelting & Refining Co.) is the sole U.S. producer of arsenic trioxide.

ASARCO's arsenic production capacity is estimated to be 11,000 tons per year, World arsenic trioxide production averages approximately 60,000 tons per year, while U.S. consumption averages 30,000 tons per year. Most of the 36 copper, lead, and zinc smelters produce some amount of arsenic-bearing flue dust as a by-product of their operations. In the past, some of this flue dust was reprocessed by ASARCO-Tacoma, in order to reclaim the amounts of precious metals and arsenic it contains. Recent information, however, indicates that ASARCO has been reducing the amount of flue dust it will accept for reprocessing, and that much of the dust is being stored by the originating smelters.

Arsenic and its compounds have a variety of applications. The major use (comprising approximately 69 percent of U.S. consumption) is for insecticides and herbicides. Before World War II inorganic arsenic compounds (primarily calcium arsenate and lead arsenate) were the most widely used pesticides. Substitutes have now replaced arsenicals in many uses. However, the record of this proceeding indicates that two arsenicals are used in the raising of cotton, especially dry field production in Texas. Arsenic acid, an inorganic pentavalent arsenical, is used as a desiccant. Methane arsonates organic arsenicals (not covered by the standard), are used

as pesticides. Approximately 40 percent of the U.S. consumption of arsenic trioxide (12,000 tons) is utilized in the synthesis of these two chemicals.

Approximately 11 percent of total U.S. arsenic trioxide consumption is used in glass production as a clarifying and reducing agent. Only small quantities (a few pounds per ton) are usually used in some forms of glass. This use has been reduced as substitutes have been developed.

Approximately 7 percent (2,100 tons) of the total U.S. consumption of arsenic trioxide is used in the synthesis of arsenical wood preservatives, principally chromated copper arsenate (CCA). Wood preservatives make wood more resistant to termites, fungi, and rot. In doing so, they extend the useful life of the wood (from 6 to 36 years) helping conserve a natural resource and lessening the need for persistent insecticides for termite control. There are several types of wood preservatives, but for some uses, the record indicates that arsenical preservatives are preferred. (See the Final Environmental Impact Statement (FEIS) and its references.)

Other uses of inorganic arsenicals are for lead alloys (5 percent), flotation reagents for concentrating copper ores (5 per cent), and feed additives (2 percent). Small quantities are used in the production of drugs, semiconductors, light omitting diodes, devices to turn solar energy into electricity and in other electronic applications. Lengthier discussions of role of arsenicals can be found in the FEIS and in the Technological Feasibility Analysis and Inflationary Impact Statement (IIS) by Arthur Young & Co. (AY).

The exact number of workers exposed to inorganic arsenicals is unknown at this time. AY estimated that approximately 660,000 employees were involved in the commercial cycle of arsenic, and that 7,400 employees were exposed to over $4\mu g/m^3$ of inorganic arsenic. This latter number is an underestimate because of employee turnover and limited data in some areas and for some facilities.

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